

# SEQUENCE LISTING

<110> Morton, Philip A

<120> ANTIBODIES TO c-MET FOR THE TREATMENT OF CANCERS

<130> 00980/1

<150> 60/447,073

<151> 2003-02-13

<160> 161

<170> PatentIn version 3.2

<210> 1

<211> 238

<212> PRT

<213> artificial

<220>

<223> phage display generated human antibody

<400> 1

Glu Val Gln Leu Leu Glu Ser Gly Arg Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly  
100 105 110

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ala Val  
115 120 125

Leu Thr Gln Pro Ser Ser Val Ser Gly Ala Pro Gly Gln Arg Val Thr  
130 135 140

Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Ala Asp Tyr Asp Val  
 145 150 155 160

His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr  
 165 170 175

Gly Asn Asn Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser  
 180 185 190

Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu  
 195 200 205

Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Asn Ser Pro Asp Ala  
 210 215 220

Tyr Val Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser  
 225 230 235

<210> 2  
 <211> 244  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 2

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala  
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe Ile Asp Tyr  
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45

Gly Trp Val Asn Pro Val Thr Gly Thr Ser Gly Ser Ser Pro Asn Phe  
 50 55 60

Arg Gly Arg Val Thr Met Thr Thr Asp Thr Ser Gly Asn Thr Ala Tyr  
 65 70 75 80

Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Phe Tyr Cys  
 85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu

100	105	110
Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly		
115	120	125
Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser		
130	135	140
Ala Pro Pro Gly Gln Lys Val Thr Ile Ser Cys Ser Gly Ser Ser Ser		
145	150	155
Asn Ile Gly Thr Asn Tyr Val Ser Trp Tyr Gln Gln Leu Pro Gly Thr		
165	170	175
Ala Pro Lys Leu Leu Ile Tyr Asp Asn His Lys Arg Pro Ser Val Ile		
180	185	190
Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Gly		
195	200	205
Ile Ser Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr		
210	215	220
Trp Asp Tyr Ser Leu Ser Thr Trp Val Phe Gly Gly Gly Thr Lys Leu		
225	230	235
		240

Thr Val Leu Gly

<210> 3  
 <211> 240  
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 <213> artificial  
 <220>  
 <223> phage display generated human antibody  
 <400> 3

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly		
1	5	10
Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Asp Ser Val Ser Ser Tyr		
20	25	30
Tyr Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp		
35	40	45

Ile Gly Glu Ile Phe Arg Asp Gly Ser Ser Asn Tyr Asn Arg Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Pro Asp Lys Pro Lys Asn Gln Phe Ser  
65 70 75 80

Leu Arg Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr Cys  
85 90 95

Ala Arg His Ile Arg Gly Tyr Asp Ala Phe Asp Ile Trp Gly Arg Gly  
100 105 110

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly  
115 120 125

Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser  
130 135 140

Val Ser Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys Thr Gly Ser  
145 150 155 160

Ser Ser Asn Ile Gly Ala Gly Tyr Asp Val His Trp Tyr Gln Gln Phe  
165 170 175

Pro Gly Arg Ala Pro Lys Leu Leu Ile Tyr Gly Asn Thr Asn Arg Pro  
180 185 190

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Asp Ile Ser Ala  
195 200 205

Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr  
210 215 220

Cys Gln Ser Tyr Asp Ser Asn Leu Thr Gly Val Phe Gly Gly Gly Thr  
225 230 235 240

<210> 4  
<211> 244  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 4

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala

1		5		10		15											
Ser	Val	Lys	Val	Ser	Cys	Lys	Thr	Ser	Gly	Tyr	Thr	Phe	Met	Asp	Tyr		
		20						25					30				
Tyr	Ile	His	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met		
		35					40					45					
Gly	Trp	Ser	Asn	Pro	Val	Thr	Gly	Thr	Ser	Gly	Ser	Ser	Pro	Lys	Phe		
	50					55					60						
Arg	Gly	Arg	Val	Thr	Leu	Thr	Thr	Asp	Thr	Ser	Gly	Asn	Thr	Ala	Tyr		
65					70					75					80		
Leu	Asp	Leu	Arg	Ser	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Phe	Tyr	Cys		
				85					90						95		
Ala	Arg	Arg	His	Gln	Gln	Ser	Leu	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Met		
			100					105					110				
Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly		
		115					120					125					
Gly	Gly	Gly	Ser	Ala	Gln	Ser	Val	Leu	Thr	Gln	Pro	Pro	Ser	Val	Ser		
	130					135					140						
Ala	Ala	Pro	Gly	Gln	Lys	Val	Thr	Ile	Ser	Cys	Ser	Gly	Ser	Ser	Ser		
145					150					155					160		
Asn	Ile	Gly	Asn	Asn	Tyr	Val	Ser	Trp	Tyr	Gln	Gln	Leu	Pro	Gly	Thr		
			165						170					175			
Ala	Pro	Lys	Leu	Leu	Met	Tyr	Glu	Asn	Ser	Lys	Arg	Pro	Ser	Gly	Ile		
			180					185					190				
Pro	Asp	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Thr	Ser	Gly	Thr	Leu	Gly		
		195					200					205					
Ile	Thr	Gly	Leu	Gln	Thr	Gly	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys	Gly	Thr		
	210					215					220						
Trp	Asp	Thr	Ser	Leu	Arg	Ala	Trp	Val	Phe	Gly	Gly	Gly	Thr	Lys	Val		
225					230					235					240		
Thr	Val	Leu	Gly														

<210> 5  
 <211> 244  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 5

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala  
 1 5 10 15

Ser Ala Lys Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe Ile Asp Tyr  
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45

Gly Trp Ile Asn Pro Val Thr Gly Ala Ser Gly Ser Ser Pro Asn Phe  
 50 55 60

Arg Gly Arg Val Thr Leu Thr Thr Asp Thr Ser Gly Asn Thr Ala Tyr  
 65 70 75 80

Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Phe Tyr Cys  
 85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Arg Gly Thr Thr  
 100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
 115 120 125

Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro Pro Ser Val Ser  
 130 135 140

Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser Gly Arg Thr Ser  
 145 150 155 160

Asn Ile Gly Asn Asn Tyr Val Ser Trp Tyr Gln Gln Val Pro Gly Ala  
 165 170 175

Pro Pro Lys Leu Leu Ile Phe Asp Asn Asn Lys Arg Pro Ser Gly Thr  
 180 185 190

Pro Ala Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Ala  
 195 200 205

Ile Ser Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr  
 210 215 220

Trp Asp Thr Thr Leu Arg Gly Phe Val Phe Gly Pro Gly Thr Lys Val  
 225 230 235 240

Thr Val Leu Gly

<210> 6  
 <211> 250  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 6

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Thr  
 20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn His Phe Ser  
 65 70 75 80

Leu Asn Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Asp Ser Met Gly Ser Thr Gly Trp His Tyr Gly Met Asp Leu  
 100 105 110

Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser  
 115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Ala Leu Thr

130                      135                      140  
 Gln Pro Pro Ser Ala Ser Gly Ser Pro Gly Gln Ser Val Thr Ile Ser  
 145                      150                      155                      160  
 Cys Ser Gly Ser Ser Ser Asp Ile Gly Asp Tyr Asn His Val Ser Trp  
                     165                      170                      175  
 Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Met Ile Tyr Asp Val  
                     180                      185                      190  
 Asn Lys Trp Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser  
                     195                      200                      205  
 Gly Asn Thr Ala Ser Leu Thr Val Ser Gly Leu Gln Ala Glu Asp Glu  
                     210                      215                      220  
 Ala Asp Tyr Tyr Cys Ser Ser Tyr Ser Gly Ile Tyr Asn Leu Val Phe  
 225                      230                      235                      240  
 Gly Gly Gly Thr Lys Val Thr Val Leu Gly  
                     245                      250

<210> 7  
 <211> 251  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 7

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser  
 1                      5                      10                      15  
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Lys Thr Tyr  
                     20                      25                      30  
 Ala Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
                     35                      40                      45  
 Gly Gly Ile Ile Pro Val Leu Gly Thr Ala Asn Tyr Val Gln Lys Phe  
                     50                      55                      60  
 Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Thr Thr Ala Tyr  
 65                      70                      75                      80



Met Glu Leu Arg Gly Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Gly Glu Gly Ser Gly Trp Tyr Asp His Tyr Tyr Gly Leu Asp  
100 105 110

Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly  
115 120 125

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu  
130 135 140

Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln Arg Val Thr Ile  
145 150 155 160

Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Ser Asn Thr Val Asn Trp  
165 170 175

Tyr Arg Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Phe Gly Asp  
180 185 190

Asp Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Arg Ser  
195 200 205

Gly Thr Ser Val Ser Leu Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu  
210 215 220

Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Ser Leu Asn Gly Gly Val  
225 230 235 240

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
245 250

<210> 8  
<211> 250  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 8

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr

20					25					30					
Ala	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
	35					40						45			
Ser	Ala	Ile	Ser	Gly	Ser	Gly	Gly	Ser	Thr	Tyr	Tyr	Ala	Asp	Ser	Val
	50					55					60				
Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Leu	Tyr
65						70					75				80
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85						90					95	
Ala	Lys	Asp	His	Tyr	Tyr	Asp	Ser	Ser	Gly	Tyr	Leu	Asp	Tyr	Trp	Gly
			100					105					110		
Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly
		115					120					125			
Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Leu	Asn	Phe	Met	Leu	Thr	Gln
	130					135					140				
Pro	His	Ser	Val	Ser	Glu	Ser	Pro	Gly	Lys	Thr	Val	Thr	Ile	Ser	Cys
145						150					155				160
Thr	Arg	Ser	Ser	Gly	Ser	Ile	Ala	Phe	Asp	Tyr	Val	Gln	Trp	Tyr	Gln
				165					170					175	
Gln	Arg	Pro	Gly	Ser	Ala	Pro	Thr	Thr	Val	Ile	Tyr	Glu	Asp	Asn	Gln
			180					185					190		
Arg	Pro	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Ala	Ser	Ile	Asp	Ser	Ser
		195					200					205			
Ser	Asn	Ser	Ala	Ser	Leu	Thr	Ile	Ser	Ala	Leu	Lys	Thr	Glu	Asp	Glu
	210					215					220				
Ala	Asp	Tyr	Tyr	Cys	Gln	Ser	Tyr	Asp	Asn	Ser	Asn	Ser	Trp	Val	Phe
225						230					235				240
Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly						
				245					250						

<210> 9

<211> 242  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 9

Lys Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Lys Asp Asp Val Arg Asn Ala Phe Asp Ile Trp Gly Arg Gly Thr  
 100 105 110

Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
 115 120 125

Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Val  
 130 135 140

Ser Val Ser Pro Gly Gln Thr Thr Ser Ile Thr Cys Ser Arg Asp Lys  
 145 150 155 160

Leu Gly Glu Gln Tyr Val Tyr Trp Tyr Gln Gln Arg Pro Gly Gln Ser  
 165 170 175

Pro Ile Leu Leu Leu Tyr Gln Asp Ser Arg Arg Pro Ser Trp Ile Pro  
 180 185 190

Glu Arg Phe Ser Gly Ser Asn Ser Gly Asp Thr Ala Thr Leu Thr Ile  
 195 200 205

Ser Gly Thr Gln Ala Leu Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp  
 210 215 220

Asp Asn Ser Ser Tyr Val Ala Phe Gly Gly Gly Thr Lys Val Thr Val  
 225 230 235 240

Leu Gly

<210> 10  
 <211> 245  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 10

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Gly Gly Glu Leu Trp Asn Pro Tyr Leu Asp Tyr Trp Gly Gln  
 100 105 110

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
 115 120 125

Gly Ser Gly Gly Gly Gly Ser Ala Leu Pro Val Leu Thr Gln Pro Pro  
 130 135 140

Ser Val Ser Val Ala Pro Gly Lys Thr Ala Arg Ile Thr Cys Gly Gly

145                      150                      155                      160  
 Asn Asp Ile Ala Ser Lys Ser Val Gln Trp Phe Gln Gln Lys Pro Gly  
                                  165                      170                      175  
 Gln Ala Pro Val Leu Val Ile Tyr Tyr Asp Ser Asp Arg Pro Ser Gly  
                                  180                      185                      190  
 Ile Pro Glu Arg Phe Ser Gly Ser Asn Ser Glu Asn Thr Ala Thr Leu  
                                  195                      200                      205  
 Thr Ile Ser Arg Val Glu Ala Gly Asp Glu Ala Asp Tyr Tyr Cys Gln  
                                  210                      215                      220  
 Val Trp Asp Ser Ser Ser Asp His Pro Val Phe Gly Gly Gly Thr Lys  
 225                      230                      235                      240  
 Leu Thr Val Leu Gly  
                                  245  
  
 <210> 11  
 <211> 250  
 <212> PRT  
 <213> artificial  
  
 <220>  
 <223> phage display generated human antibody  
  
 <400> 11  
  
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Glu  
 1                      5                      10                      15  
  
 Ser Leu Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe Thr Asn Tyr  
                                  20                      25                      30  
  
 Trp Ile Ala Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met  
                                  35                      40                      45  
  
 Gly Ile Ile Tyr Pro Asp Asp Ser Asp Thr Arg Tyr Asn Pro Ser Phe  
                                  50                      55                      60  
  
 Gln Gly Gln Val Thr Met Ser Ala Asp Lys Ser Ile Asp Thr Ala Tyr  
 65                      70                      75                      80  
  
 Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Ile Tyr Tyr Cys  
                                  85                      90                      95

Ala Arg Pro Ser Gly Trp Asn Asp Asn Gly Tyr Phe Asp Tyr Trp Gly  
 100 105 110

Arg Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
 130 135 140

Pro His Ser Val Ser Ala Ser Pro Gly Lys Thr Val Thr Leu Ser Cys  
 145 150 155 160

Thr Gly Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Arg  
 165 170 175

Gln Arg Pro Gly Ser Ala Pro Thr Thr Val Ile Tyr Asp Asp Asn Gln  
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser  
 195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu  
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Phe Asp Asn Asp Asn His Trp Val Phe  
 225 230 235 240

Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
 245 250

<210> 12  
 <211> 247  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 12

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Arg Ser Ser Gly  
 1 5 10 15

Ile Leu Ser Leu Thr Cys Ser Val Ser Gly Val Ser Val Ser Ser Asn  
 20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Trp

35					40					45					
Ile	Gly	Glu	Ile	Tyr	Gln	Thr	Gly	Thr	Thr	Asn	Tyr	Asn	Pro	Ser	Leu
50					55					60					
Lys	Ser	Arg	Val	Ala	Ile	Ser	Leu	Asp	Lys	Ser	Arg	Asn	Gln	Phe	Ser
65					70					75					80
Leu	Ile	Leu	Lys	Ser	Val	Thr	Ala	Ala	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Arg	Thr	Ser	Ser	Ala	Trp	Ser	Asn	Ala	Asp	Trp	Gly	Lys	Gly	Thr
			100					105					110		
Met	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser
			115				120					125			
Gly	Gly	Gly	Gly	Ser	Ala	Leu	Ser	Ser	Glu	Leu	Thr	Gln	Asp	Pro	Ser
	130					135					140				
Ala	Ser	Gly	Ser	Pro	Gly	Gln	Ser	Val	Ser	Ile	Ser	Cys	Thr	Gly	Thr
145					150					155					160
Ser	Ser	Asp	Val	Gly	Gly	Tyr	Asn	Tyr	Val	Ser	Trp	Tyr	Gln	Gln	His
			165					170						175	
Pro	Gly	Lys	Ala	Pro	Lys	Leu	Met	Ile	Ser	Glu	Val	Thr	Lys	Arg	Pro
			180					185					190		
Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly	Asn	Thr	Ala
		195					200					205			
Ser	Leu	Thr	Val	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu	Ala	Asp	Tyr	Tyr
	210					215					220				
Cys	Ser	Ser	Phe	Gly	Ala	Asn	Asn	Asn	Tyr	Leu	Val	Phe	Gly	Gly	Gly
225					230					235					240
Thr	Lys	Leu	Thr	Val	Leu	Gly									
				245											

<210> 13  
 <211> 251  
 <212> PRT  
 <213> artificial

<220>

<223> phage display generated human antibody

<400> 13

Gln Val Gln Leu Gln Glu Ser Gly Pro Arg Leu Val Lys Pro Ser Gln  
1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Asn Asp Ser Ile Ile Ser Gly  
20 25 30

Asp Tyr Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu  
35 40 45

Trp Ile Gly Asn Ile Phe Tyr Thr Gly Ser Thr Ser Tyr Asn Pro Ser  
50 55 60

Leu Lys Ser Arg Leu Thr Met Ser Leu Asp Thr Ser Lys Asn Gln Phe  
65 70 75 80

Ser Leu Arg Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Phe  
85 90 95

Cys Ala Arg Gly Arg Gln Gly Met Asn Trp Asn Ser Gly Thr Tyr Phe  
100 105 110

Asp Ser Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly  
115 120 125

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Ser Tyr  
130 135 140

Val Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Lys Thr Ala  
145 150 155 160

Asn Ile Thr Cys Gly Gly Lys Asn Ile Gly Asn Lys Ser Val Gln Trp  
165 170 175

Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Val Val Met Tyr Tyr Asp  
180 185 190

Ser Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn Ala  
195 200 205

Gly Asn Thr Ala Thr Leu Thr Ile Asp Arg Val Glu Ala Gly Asp Glu  
210 215 220



Ala Asp Tyr Tyr Cys Gln Val Trp Asp Lys Ser Ser Asp Arg Pro Val  
 225 230 235 240

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
 245 250

<210> 14  
 <211> 245  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 14

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe Met Glu Tyr  
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45

Gly Trp Ser Asn Pro Val Thr Gly Thr Ser Gly Ser Ser Pro Lys Phe  
 50 55 60

Arg Gly Arg Val Thr Leu Thr Thr Asp Thr Ser Gly Asn Thr Ala Tyr  
 65 70 75 80

Leu Asp Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Phe Tyr Cys  
 85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu  
 100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
 115 120 125

Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro Pro Ser Ala Ser  
 130 135 140

Gly Ser Pro Gly Gln Ser Val Thr Ile Ser Cys Ser Gly Tyr Ser Ser  
 145 150 155 160

Ser Asn Ile Gly Asn Asn Ala Val Ser Trp Tyr Gln Gln Leu Pro Gly



Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro  
 130 135 140

Pro Ser Val Ser Val Ala Pro Gly Gln Thr Ala Arg Ile Thr Cys Gly  
 145 150 155 160

Gly Asp Asn Ile Gly Arg Lys Asn Val His Trp Tyr Gln Gln Arg Pro  
 165 170 175

Gly Leu Ala Pro Val Leu Val Val Tyr Asp Asp Thr Asp Arg Pro Ser  
 180 185 190

Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn Ser Gly Asp Thr Ala Thr  
 195 200 205

Leu Thr Ile Thr Trp Val Glu Ala Gly Asp Glu Ala Asp Tyr Tyr Cys  
 210 215 220

Gln Leu Trp Asp Ser Asp Thr Tyr Asp Val Leu Phe Gly Gly Gly Thr  
 225 230 235 240

Lys Leu Thr Val Leu Gly  
 245

<210> 16  
 <211> 247  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 16

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser  
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ser Ser Gly Gly Pro Phe Ser Ser Tyr  
 20 25 30

Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45

Gly Gly Ile Ser Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe

50		55		60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Glu Thr Ala Tyr				
65		70		75
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys				
	85		90	95
Ala Arg Asp Glu Ser Pro Val Gly Phe Tyr Ala Leu Asp Ile Trp Gly				
	100		105	110
Arg Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly				
	115		120	125
Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Ser Tyr Glu Leu Thr Gln				
	130		135	140
Pro Pro Ser Val Ser Val Ala Pro Gly Gln Thr Ala Arg Ile Asn Cys				
	145		150	155
Gly Gly Asp Lys Ile Gly Ser Arg Ser Val His Trp Tyr Gln Gln Lys				
	165		170	175
Pro Gly Gln Ala Pro Val Met Val Val Tyr Asp Asp Ser Asp Arg Pro				
	180		185	190
Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn Ser Gly Asn Thr Ala				
	195		200	205
Thr Leu Thr Ile Ser Ser Val Glu Ala Gly Asp Glu Ala Asp Tyr Tyr				
	210		215	220
Cys Gln Val Trp Asp Gly Ser Thr Asp Pro Trp Val Phe Gly Gly Gly				
	225		230	235
Thr Lys Val Thr Val Leu Gly				
	245			

<210> 17  
 <211> 255  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 17

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Met Lys Lys Pro Gly Ser  
 1 5 10 15  
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr  
 20 25 30  
 Ala Val Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45  
 Gly Gly Ile Ile Pro Ile Phe Asp Thr Ser Asn Tyr Ala Gln Lys Phe  
 50 55 60  
 Gln Gly Arg Leu Thr Met Thr Ala Asp Asp Ser Thr Asn Thr Ala Tyr  
 65 70 75 80  
 Met Glu Leu Arg Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 Ala Arg Gly Ala Pro Arg Gly Thr Val Met Ala Phe Ser Ser Tyr Tyr  
 100 105 110  
 Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly  
 115 120 125  
 Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn  
 130 135 140  
 Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr  
 145 150 155 160  
 Val Ile Ile Ser Cys Ala Gly Ser Gly Gly Asn Ile Ala Thr Asn Tyr  
 165 170 175  
 Val Gln Trp Tyr Gln His Arg Pro Gly Ser Ala Pro Ile Thr Val Ile  
 180 185 190  
 Tyr Glu Asp Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly  
 195 200 205  
 Ser Val Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu  
 210 215 220  
 Gln Thr Glu Asp Glu Ala Asp Tyr Tyr Cys His Ser Tyr Asp Asn Thr  
 225 230 235 240

Asp Gln Gly Val Phe Gly Thr Gly Thr Lys Val Thr Val Leu Gly  
245 250 255

<210> 18  
<211> 253  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 18

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr  
20 25 30

Asp Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Ser Ile Ser Trp Ser Gly Gly Thr Ile Gly Tyr Ala Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Val Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys  
85 90 95

Ala Lys Asp Arg Gly Ala Val Ala Ala Leu Pro Asp Tyr Gln Tyr Gly  
100 105 110

Met Asp Val Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly  
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser  
130 135 140

Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Pro Gly Gln Ser Ile  
145 150 155 160

Thr Ile Ser Cys Thr Gly Thr Ser Ser Asp Ile Gly Ser Tyr Asn Leu  
165 170 175

Val Ser Trp Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Met Ile

180                                      185                                      190  
 Tyr Glu Asp Tyr Lys Arg Ala Ser Gly Val Ser Asn His Phe Ser Gly  
           195                                      200                                      205  
 Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala  
           210                                      215                                      220  
 Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser Tyr Ala Gly Ser Ser Ala  
 225                                      230                                      235                                      240  
 Trp Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu Gly  
                                     245                                      250

<210> 19  
 <211> 245  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 19

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ser  
 1                                      5                                      10                                      15  
 Ser Met Lys Val Ser Cys Lys Ala Ser Gly Asp Thr Phe Arg Asn Phe  
           20                                      25                                      30  
 Ala Phe Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
           35                                      40                                      45  
 Gly Gly Val Ile Pro Leu Val Gly Pro Pro Lys Tyr Ala Gln Lys Phe  
           50                                      55                                      60  
 Gln Gly Arg Leu Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ser Tyr  
 65                                      70                                      75                                      80  
 Met Asp Leu Thr Ser Leu Thr Leu Glu Asp Thr Ala Val Tyr Phe Cys  
           85                                      90                                      95  
 Ala Arg Gly Gly Val Tyr Ala Pro Phe Asp Lys Trp Gly Gln Gly Thr  
           100                                      105                                      110  
 Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
           115                                      120                                      125

Gly Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro Pro Ser Val  
 130 135 140

Ser Glu Ala Pro Arg Gln Arg Val Thr Ile Ser Cys Ser Gly Ser Ser  
 145 150 155 160

Ser Asn Ile Gly Asn Asn Ala Val Asn Trp Tyr Gln Gln Leu Pro Gly  
 165 170 175

Lys Ala Pro Lys Leu Leu Ile Tyr Tyr Asn Asp Leu Leu Pro Ser Gly  
 180 185 190

Val Ser Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu  
 195 200 205

Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala  
 210 215 220

Ala Trp Asp Asp Ser Leu Asn Gly Trp Val Phe Gly Gly Gly Thr Lys  
 225 230 235 240

Val Thr Val Leu Gly  
 245

<210> 20  
 <211> 251  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 20

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser  
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Lys Thr Tyr  
 20 25 30

Ala Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45

Gly Gly Ile Ile Pro Val Leu Gly Thr Ala Asn Tyr Val Gln Lys Phe  
 50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Thr Thr Ala Tyr



65		70		75		80									
Met	Glu	Leu	Arg	Gly	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Arg	Gly	Glu	Gly	Ser	Gly	Trp	Tyr	Asp	His	Tyr	Tyr	Gly	Leu	Asp
			100					105					110		
Val	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly
		115					120					125			
Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Gln	Ser	Val	Leu
	130					135					140				
Thr	Gln	Pro	Pro	Ser	Ala	Ser	Gly	Thr	Pro	Gly	Gln	Arg	Val	Thr	Ile
145					150					155					160
Ser	Cys	Ser	Gly	Ser	Ser	Ser	Asn	Ile	Gly	Ser	Asn	Thr	Val	Asn	Trp
				165					170					175	
Tyr	Arg	Gln	Leu	Pro	Gly	Thr	Ala	Pro	Lys	Leu	Leu	Ile	Phe	Gly	Asp
			180					185					190		
Asp	Gln	Arg	Pro	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Arg	Ser
		195					200					205			
Gly	Thr	Ser	Val	Ser	Leu	Ala	Ile	Ser	Gly	Leu	Gln	Ser	Glu	Asp	Glu
	210					215					220				
Ala	Asp	Tyr	Tyr	Cys	Ala	Ala	Trp	Asp	Asp	Ser	Leu	Asn	Gly	Gly	Val
225					230					235					240
Phe	Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly					
				245					250						
<210> 21															
<211> 248															
<212> PRT															
<213> artificial															
<220>															
<223> phage display generated human antibody															
<400> 21															
Gln	Leu	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Gly	Leu	Val	Lys	Pro	Ser	Gly
1				5				10					15		

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
 100 105 110

Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ala Val Leu Thr Gln Pro  
 130 135 140

Ser Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser  
 145 150 155 160

Gly Ser Ser Ser Asn Ile Gly Asn Asn Tyr Val Ser Trp Tyr Gln Gln  
 165 170 175

Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Asp Asn Asn Lys Arg  
 180 185 190

Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser Arg Ser Gly Thr Ser  
 195 200 205

Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr  
 210 215 220

Tyr Cys Gly Thr Trp Asp Ser Ser Leu Ser Ala Val Val Phe Gly Thr  
 225 230 235 240

Gly Thr Lys Leu Thr Val Leu Gly  
 245

<210> 22  
 <211> 250  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 22

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Thr  
 20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn His Phe Ser  
 65 70 75 80

Leu Asn Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Asp Ser Met Gly Ser Thr Gly Trp His Tyr Gly Met Asp Leu  
 100 105 110

Trp Gly Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser  
 115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Ala Leu Thr  
 130 135 140

Gln Pro Ala Ser Val Ser Gly Ser Pro Gly Gln Ser Ile Ala Ile Ser  
 145 150 155 160

Cys Thr Gly Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp  
 165 170 175

Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Met Ile Tyr Ala Val  
 180 185 190

Thr Asn Arg Pro Ser Gly Val Ser Asp Arg Phe Ser Gly Ser Lys Ser

195                                      200                                      205  
 Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala Asp Asp Glu  
   210                                      215                                      220  
 Ala Asp Tyr Tyr Cys Ser Ser Tyr Thr Ser Ser Ser Ser Leu Val Phe  
   225                                      230                                      235                                      240  
 Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
                                     245                                      250  
  
 <210> 23  
 <211> 240  
 <212> PRT  
 <213> artificial  
  
 <220>  
 <223> phage display generated human antibody  
  
 <400> 23  
  
 Gly Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly  
   1                                      5                                      10                                      15  
  
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
                                     20                                      25                                      30  
  
 Thr Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
                                     35                                      40                                      45  
  
 Ser Tyr Ile Ser Ser Ser Gly Ser Ala Thr Tyr Tyr Ala Asp Ser Val  
   50                                      55                                      60  
  
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Asn Asn Ser Leu Tyr  
   65                                      70                                      75                                      80  
  
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
                                     85                                      90                                      95  
  
 Ala Arg Gly Tyr Arg Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Leu  
                                     100                                      105                                      110  
  
 Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
   115                                      120                                      125  
  
 Gly Gly Gly Ser Gly Ile Val Met Thr Gln Ser Pro Ser Thr Leu Ser  
   130                                      135                                      140

Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly  
 145 150 155 160

Ile Ser Ser Trp Leu Ala Trp Tyr Gln Gln Lys Pro Gly Arg Ala Pro  
 165 170 175

Lys Val Leu Ile Tyr Lys Ala Ser Thr Leu Glu Ser Gly Val Pro Ser  
 180 185 190

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser  
 195 200 205

Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr  
 210 215 220

Ser Thr Pro Trp Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg  
 225 230 235 240

<210> 24  
 <211> 245  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 24

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Thr Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Asp Leu Ala Val Ala Gly Ile Asp Tyr Trp Gly Arg Gly Thr

100 105 110  
 Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
 115 120 125  
 Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Ala  
 130 135 140  
 Ser Gly Thr Pro Gly Gln Arg Val Thr Ile Ser Cys Ser Gly Ser Ser  
 145 150 155 160  
 Ser Asn Ile Arg Ser Asn Tyr Val Tyr Trp Tyr Gln Gln Phe Pro Gly  
 165 170 175  
 Thr Ala Pro Lys Leu Leu Ile Tyr Arg Asn Asn Gln Arg Pro Ser Gly  
 180 185 190  
 Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu  
 195 200 205  
 Ala Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala  
 210 215 220  
 Ala Trp Asp Asp Thr Leu Asp Ala Tyr Val Phe Ala Ala Gly Thr Lys  
 225 230 235 240  
 Leu Thr Val Leu Gly  
 245

<210> 25  
 <211> 251  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 25

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
130 135 140

Pro His Ser Val Ser Gly Ser Pro Gly Arg Thr Val Thr Ile Ser Cys  
145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Ala Thr Asn Tyr Val Gln Trp Tyr Gln  
165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Ile Val Ile Tyr Glu Asp Asn Gln  
180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Thr Ser  
195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu  
210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Asn Asn Leu Gly Val Val  
225 230 235 240

Phe Gly Gly Gly Thr Gln Leu Thr Val Leu Ser  
245 250

<210> 26

<211> 249

<212> PRT

<213> artificial

<220>

<223> phage display generated human antibody

<400> 26

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Ile Ser Cys Lys Thr Ser Gly Tyr Thr Phe Met Asp Tyr  
20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Trp Ser Asn Pro Val Thr Gly Thr Ser Gly Ser Ser Pro Lys Phe  
50 55 60

Arg Gly Arg Val Thr Leu Thr Thr Asp Thr Ser Gly Asn Thr Ala Tyr  
65 70 75 80

Leu Asp Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Phe Tyr Cys  
85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
115 120 125

Gly Gly Gly Ser Ala Gln Ala Val Leu Thr Gln Pro Ser Ser Leu Ser  
130 135 140

Ala Ser Pro Gly Ala Ser Ala Ser Leu Thr Cys Thr Leu Arg Ser Asp  
145 150 155 160

Ile Asn Val Gly Ser Tyr Ser Ile Asn Trp Tyr Gln Gln Lys Pro Gly  
165 170 175

Ser Pro Pro Gln Tyr Leu Leu Asn Tyr Arg Ser Asp Ser Asp Lys Gln  
180 185 190

Gln Gly Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Lys Asp Ala Ser  
195 200 205

Ala Asn Ala Gly Ile Leu Leu Ile Ser Gly Leu Gln Ser Glu Asp Glu  
210 215 220

Ala Asp Tyr Tyr Cys Met Ile Trp Tyr Arg Thr Ala Trp Val Phe Gly





Ala Pro Lys Leu Leu Ile Tyr Asp Asn Asn Lys Arg Pro Ser Gly Val  
180 185 190

Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Val  
195 200 205

Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala  
210 215 220

Trp Asp Gly Ser Leu Thr Ala Trp Val Phe Gly Gly Gly Thr Lys Val  
225 230 235 240

Thr Val Leu Gly

<210> 28  
<211> 250  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 28

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Asp Ser Ile Ser Ser Ser  
20 25 30

Asn Trp Trp Thr Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Phe His Ser Gly Thr Thr Asn Tyr Asn Pro Ser Leu  
50 55 60

Asn Asn Arg Val Thr Ile Ser Leu Asp Glu Ser Arg Asn Gln Phe Ser  
65 70 75 80

Leu Glu Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr Cys  
85 90 95

Ala Arg Asp Ser Gly Asn Tyr Asp Asp Asn Arg Gly Tyr Asp Tyr Trp  
100 105 110

Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly

	115		120		125												
Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Gln	Ser	Val	Leu	Thr	Gln		
	130					135					140						
Pro	Pro	Ser	Val	Ser	Gly	Ala	Pro	Gly	Gln	Arg	Val	Thr	Ile	Ser	Cys		
145					150					155					160		
Ala	Gly	Thr	Ser	Ser	Asn	Ile	Gly	Ala	Gly	Phe	Asp	Val	His	Trp	Tyr		
				165					170					175			
Gln	Leu	Leu	Pro	Gly	Arg	Ala	Pro	Lys	Leu	Leu	Ile	Tyr	Gly	Asn	Asn		
			180					185					190				
Asn	Arg	Pro	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Gly		
		195					200						205				
Thr	Ser	Ala	Ser	Leu	Ala	Ile	Ser	Gly	Leu	Gln	Ser	Glu	Asp	Glu	Gly		
	210					215					220						
Asp	Tyr	Tyr	Cys	Ala	Ala	Trp	Asp	Asp	Thr	Val	Gly	Gly	Pro	Val	Phe		
225					230					235					240		
Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly								
				245					250								

<210> 29  
 <211> 250  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody  
 <400> 29

Gln	Val	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Gly	Leu	Val	Lys	Pro	Ser	Gly
1				5				10						15	
Thr	Leu	Ser	Leu	Thr	Cys	Ala	Val	Ser	Gly	Gly	Ser	Ile	Ser	Ser	Thr
			20					25					30		
Asn	Trp	Trp	Ser	Trp	Val	Arg	Gln	Pro	Pro	Gly	Lys	Gly	Leu	Glu	Trp
		35					40					45			
Ile	Gly	Glu	Ile	Tyr	His	Ser	Gly	Ser	Thr	Asn	Tyr	Asn	Pro	Ser	Leu
	50					55					60				

Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn His Phe Ser  
65 70 75 80

Leu Asn Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Ser Met Gly Ser Thr Gly Trp His Tyr Gly Met Asp Leu  
100 105 110

Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser  
115 120 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Ala Leu Thr  
130 135 140

Gln Pro Ala Ala Val Ser Gly Ser Pro Gly Gln Ser Ile Thr Ile Ser  
145 150 155 160

Cys Thr Gly Ser Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp  
165 170 175

Tyr Gln Gln His Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Asp Val  
180 185 190

Ser Asp Arg Pro Ser Gly Val Ser Tyr Arg Phe Ser Gly Ser Lys Ser  
195 200 205

Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala Glu Asp Glu  
210 215 220

Ala Asp Tyr Tyr Cys Ser Ser Tyr Thr Ala Thr Gly Thr Leu Val Phe  
225 230 235 240

Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
245 250

<210> 30  
<211> 251  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody  
<400> 30

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly

1		5		10		15											
Thr	Leu	Ser	Leu	Thr	Cys	Ala	Val	Ser	Gly	Gly	Ser	Ile	Ser	Ser	Thr		
			20					25					30				
Asn	Trp	Trp	Ser	Trp	Val	Arg	Gln	Pro	Pro	Gly	Lys	Gly	Leu	Glu	Trp		
		35					40					45					
Ile	Gly	Glu	Ile	Tyr	His	Ser	Gly	Ser	Thr	Asn	Tyr	Asn	Pro	Ser	Leu		
	50					55					60						
Lys	Ser	Arg	Val	Thr	Ile	Ser	Val	Asp	Lys	Ser	Lys	Asn	His	Phe	Ser		
65					70					75					80		
Leu	Asn	Leu	Ser	Ser	Val	Thr	Ala	Ala	Asp	Thr	Ala	Val	Tyr	Tyr	Cys		
				85					90					95			
Ala	Arg	Asp	Ser	Met	Gly	Ser	Thr	Gly	Trp	His	Tyr	Gly	Met	Asp	Leu		
			100					105					110				
Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser		
		115					120					125					
Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Gln	Ser	Ala	Leu	Thr		
	130					135					140						
Gln	Pro	Ala	Ser	Val	Ser	Gly	Ser	Pro	Gly	Gln	Ser	Ile	Thr	Ile	Ser		
145					150					155					160		
Cys	Thr	Gly	Thr	Ser	Ser	Asp	Val	Gly	Gly	Tyr	Asn	Tyr	Val	Ser	Trp		
				165					170					175			
Tyr	Gln	Gln	His	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Met	Ile	Tyr	Glu	Val		
			180					185				190					
Ser	Asn	Arg	Pro	Leu	Gly	Val	Ser	Asn	Arg	Phe	Ser	Gly	Ser	Lys	Ser		
		195					200					205					
Gly	Asn	Thr	Ala	Ser	Leu	Thr	Ile	Ser	Gly	Leu	Gln	Ala	Glu	Asp	Glu		
	210					215					220						
Gly	Asp	Tyr	Tyr	Cys	Ser	Ser	Tyr	Thr	Ser	Ser	Thr	Thr	Leu	Ile	Val		
225					230					235					240		
Phe	Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly							

245

250

<210> 31  
 <211> 248  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 31

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
 100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro  
 130 135 140

Pro Ser Val Ser Gly Thr Thr Gly Gln Arg Val Ile Leu Ser Cys Ser  
 145 150 155 160

Gly Gly Asn Ser Asn Ile Gly Tyr Asn Ser Val Asn Trp Tyr Gln Gln  
 165 170 175

Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Thr Asp Asp Gln Arg  
 180 185 190

Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Arg Ser Gly Thr Ser  
 195 200 205

Ala Ser Leu Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu Ala Asp Tyr  
 210 215 220

Tyr Cys Ala Thr Trp Asp Asp Ser Leu Asn Ala Gly Val Phe Gly Gly  
 225 230 235 240

Gly Thr Lys Leu Thr Val Leu Gly  
 245

<210> 32  
 <211> 245  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 32

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro Gly Ala  
 1 5 10 15

Ser Val Arg Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe Leu Glu Tyr  
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
 35 40 45

Ala Trp Ser Asn Pro Val Thr Gly Thr Ser Gly Ser Ser Pro Lys Phe  
 50 55 60

Arg Gly Arg Val Thr Leu Thr Ala Asp Thr Ser Gly Asn Thr Ala Tyr  
 65 70 75 80

Leu Asp Leu Lys Ser Leu Thr Ser Asp Asp Thr Ala Ile Phe Tyr Cys  
 85 90 95

Ala Arg Arg His Gln Gln Ser Leu Asp Tyr Trp Gly Gln Gly Thr Leu  
 100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
 115 120 125

Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser

130                      135                      140  
 Ala Ala Pro Gly Gln Thr Val Thr Ile Ser Cys Ser Gly Ser Asn Ser  
 145                      150                      155                      160  
 Asn Ile Gly Asn Asn His Val Ser Trp Tyr Arg Gln Leu Pro Glu Thr  
                     165                      170                      175  
 Ala Pro Lys Leu Leu Ile Tyr Asp Asn Asn Lys Arg Pro Ser Gly Ile  
                     180                      185                      190  
 Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Asp  
                     195                      200                      205  
 Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Ala Thr  
                     210                      215                      220  
 Trp Asp Asn Ser Leu Ser Ala Pro Trp Val Phe Gly Gly Gly Thr Lys  
 225                      230                      235                      240  
 Leu Thr Val Leu Gly  
                     245

<210> 33  
 <211> 252  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody  
 <400> 33

Gln Val Gln Leu Gln Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Ser  
 1                      5                      10                      15  
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Ser  
                     20                      25                      30  
 Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
                     35                      40                      45  
 Gly Gly Ile Ile Pro Val Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe  
                     50                      55                      60  
 Gln Asp Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr  
 65                      70                      75                      80



Leu Glu Leu Ser Arg Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Ser Arg Gly Glu Tyr Asp Tyr Gly Asp Tyr Asp Val Tyr Tyr Tyr  
100 105 110

Tyr Met Glu Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly  
115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln  
130 135 140

Ser Val Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln Thr  
145 150 155 160

Ala Arg Leu Thr Cys Gly Ala Asn Asn Ile Gly Ser Thr Ser Val His  
165 170 175

Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr Asp  
180 185 190

Asp Thr Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser Asn  
195 200 205

Ser Gly Asn Thr Ala Thr Leu Thr Ile Arg Arg Val Glu Ala Gly Asp  
210 215 220

Glu Ala Asp Tyr Tyr Cys Gln Val Trp Asp Thr Asn Ser Asp His Val  
225 230 235 240

Ile Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
245 250

<210> 34  
<211> 249  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 34

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser  
1 5 10 15

Ser Val Lys Val Ser Cys Gln Ala Ser Gly Gly Thr Phe Thr Ser His

20					25					30					
Ala	Met	Tyr	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
	35						40					45			
Gly	Gly	Ile	Ile	Pro	Ile	Phe	Gly	Arg	Thr	Asn	Tyr	Ala	Gln	Lys	Phe
	50					55					60				
Gln	Gly	Arg	Val	Thr	Phe	Thr	Ala	Asp	Met	Ser	Thr	Ser	Thr	Ala	Tyr
65					70					75					80
Met	Glu	Met	Thr	Ser	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Arg	Gly	Asp	Asn	Trp	Asn	Asp	Leu	Tyr	Pro	Ile	Asp	Tyr	Trp	Gly
			100					105					110		
Arg	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly
		115					120					125			
Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Leu	Asn	Phe	Met	Leu	Thr	Gln
	130					135					140				
Pro	His	Ser	Val	Ser	Glu	Ser	Pro	Gly	Lys	Thr	Val	Thr	Ile	Ser	Cys
145					150					155					160
Thr	Arg	Ser	Ser	Gly	Ser	Ile	Ala	Thr	Thr	Tyr	Val	Gln	Trp	Phe	Gln
				165					170					175	
Gln	Arg	Pro	Gly	Ser	Ser	Pro	Thr	Thr	Val	Ile	Tyr	Asp	Asp	Asp	Gln
			180					185					190		
Arg	Pro	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Ile	Asp	Ser	Ser
		195					200					205			
Ser	Asn	Ser	Ala	Ser	Leu	Thr	Ile	Ser	Gly	Leu	Met	Pro	Glu	Asp	Glu
	210					215					220				
Ala	Asp	Tyr	Tyr	Cys	Gln	Ser	Tyr	Asp	Asn	Thr	Asp	Leu	Val	Phe	Gly
225					230					235					240
Gly	Gly	Thr	Gln	Leu	Thr	Val	Leu	Ser							
				245											

<210> 35

<211> 248  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 35

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Val Ser Gly Tyr Ser Leu Ser Glu Leu  
 20 25 30

Ser Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Met  
 35 40 45

Gly Gly Phe Asp Pro Gln Asn Gly Tyr Thr Ile Tyr Ala Gln Glu Phe  
 50 55 60

Gln Gly Arg Ile Thr Met Thr Glu Asp Thr Ser Thr Asp Thr Val Tyr  
 65 70 75 80

Met Glu Leu Gly Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Phe Cys  
 85 90 95

Ala Ala Ile Glu Ile Thr Gly Val Asn Trp Tyr Phe Asp Leu Trp Gly  
 100 105 110

Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Ser Ser Glu Leu Thr Gln  
 130 135 140

Asp Pro Asp Val Ser Val Ala Leu Gly Gln Thr Val Arg Ile Thr Cys  
 145 150 155 160

Gln Gly Asp Ser Leu Lys Lys Phe Tyr Pro Gly Trp Tyr Gln Gln Lys  
 165 170 175

Pro Gly Gln Ala Pro Leu Leu Val Leu Tyr Gly Glu Asn Ile Arg Pro  
 180 185 190

Ser Arg Ile Pro Asp Arg Phe Ser Gly Ser Ser Ser Gly Asn Thr Ala  
 195 200 205

Thr Leu Thr Ile Thr Gly Ala Gln Ala Glu Asp Glu Ala Val Tyr Tyr  
 210 215 220

Cys Asn Ser Arg Glu Ala Ser Val His His Val Arg Val Phe Gly Gly  
 225 230 235 240

Gly Thr Lys Leu Thr Val Leu Gly  
 245

<210> 36  
 <211> 251  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 36

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
 100 105 110

Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys

145                      150                      155                      160  
 Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln  
                                  165                      170                      175  
 Gln Arg Pro Gly Ser Ser Pro Thr Thr Val Ile Tyr Glu Asp Asn Gln  
                                  180                      185                      190  
 Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser  
                                  195                      200                      205  
 Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu  
                                  210                      215                      220  
 Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Asn Gln Gly Val Val  
 225                      230                      235                      240  
 Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
                                  245                      250  
  
 <210> 37  
 <211> 251  
 <212> PRT  
 <213> artificial  
  
 <220>  
 <223> phage display generated human antibody  
  
 <400> 37  
 Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1                      5                      10                      15  
 Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
                                  20                      25                      30  
 Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
                                  35                      40                      45  
 Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
                                  50                      55                      60  
 Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65                      70                      75                      80  
 Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
                                  85                      90                      95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
 100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys  
 145 150 155 160

Thr Gly Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln  
 165 170 175

Gln Arg Pro Gly Ser Ala Pro Thr Thr Leu Ile Tyr Glu Asp Asp Gln  
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Val Asp Ser Ser  
 195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu  
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Arg Ser Asn Gln Ala Val Val  
 225 230 235 240

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
 245 250

<210> 38  
 <211> 253  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 38

Gln Val Gln Leu Val Gln Ser Gly Pro Glu Val Lys Lys Pro Gly Ala  
 1 5 10 15

Ser Val Glu Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Asp  
 20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Pro Glu Trp Met

35		40		45
Gly Trp Ile Asn Pro Gln Thr Gly Val Thr Lys Tyr Ala Gln Lys Phe				
50		55		60
Gln Gly Arg Val Thr Met Ala Arg Asp Thr Ser Ile Asn Thr Ala Tyr				
65		70		80
Met Glu Leu Arg Gly Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys				
	85		90	95
Val Arg Glu Asp His Asn Tyr Asp Leu Trp Ser Ala Tyr Asn Gly Leu				
	100		105	110
Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly				
	115		120	125
Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val				
	130		135	140
Leu Thr Gln Pro Pro Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr				
145		150		155
Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn His Val Ser				
	165		170	175
Trp Tyr Gln Gln Leu Ala Gly Thr Ala Pro Lys Leu Leu Ile Phe Asp				
	180		185	190
Asn Asp Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser Lys				
	195		200	205
Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp				
	210		215	220
Glu Ala Asp Tyr Tyr Cys Gly Thr Trp Asp Lys Ser Pro Thr Asp Ile				
225		230		235
Tyr Val Phe Gly Ser Gly Thr Lys Leu Thr Val Leu Gly				
	245		250	
<210>	39			
<211>	247			
<212>	PRT			
<213>	artificial			

<220>

<223> phage display generated human antibody

<400> 39

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Ser  
20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr Tyr Gly Gly Ser Thr Asn Tyr Asn Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Leu Ser Val Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Arg Leu Ile Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Ser Ser Gly Leu Tyr Gly Asp Tyr Gly Asn Leu Trp Gly Arg  
100 105 110

Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
115 120 125

Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro Pro  
130 135 140

Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser Gly  
145 150 155 160

Ser Ala Ser Asn Ile Gly Asp His Tyr Ile Ser Trp Tyr Gln Gln Phe  
165 170 175

Pro Gly Thr Ala Pro Lys Leu Leu Ile Ser Asp Asn Asp Gln Arg Pro  
180 185 190

Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala  
195 200 205

Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr  
210 215 220



Cys Gly Thr Trp Asp Ser Asn Leu Ser Ser Trp Val Phe Gly Ser Gly  
 225 230 235 240

Thr Lys Val Thr Val Leu Gly  
 245

<210> 40  
 <211> 250  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 40

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
 1 5 10 15

Thr Leu Lys Val Ser Cys Lys Val Ser Ala Tyr Thr Phe Thr Asp Tyr  
 20 25 30

Ser Met His Trp Val Gln Gln Ala Pro Gly Lys Gly Leu Lys Trp Met  
 35 40 45

Gly Leu Ile Asp Leu Glu Asp Gly Asn Thr Ile Tyr Ala Glu Glu Phe  
 50 55 60

Gln Asp Arg Val Thr Ile Thr Ala Asp Thr Ser Thr Asp Thr Ala Tyr  
 65 70 75 80

Met Asp Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Phe Tyr Cys  
 85 90 95

Ala Ile Ser Pro Leu Arg Gly Leu Thr Ala Asp Val Phe Asp Val Trp  
 100 105 110

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly  
 115 120 125

Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Ala Leu Thr Gln  
 130 135 140

Pro Ala Ser Ala Ser Gly Ser Pro Gly Gln Ser Ile Thr Ile Ser Cys  
 145 150 155 160

Thr Gly Thr Ser Ser Asp Ile Gly Arg Tyr Asp Phe Val Ser Trp Tyr

	165		170		175
Gln Arg Gln Pro Gly Lys Ala Pro Lys Leu Met Ile Tyr Asp Val Ile	180	185	190		
Asn Arg Pro Ser Gly Val Ser Ser Arg Phe Ser Gly Ser Lys Ser Gly	195	200	205		
Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu Gln Ala Glu Asp Glu Ala	210	215	220		
Asp Tyr Tyr Cys Ser Ser Tyr Ala Gly Ser Thr Thr Leu Tyr Val Phe	225	230	235	240	
Gly Thr Gly Thr Lys Leu Thr Val Leu Gly	245	250			

<210> 41  
 <211> 246  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody  
 <400> 41

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Ala	1	5	10	15
Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Asn	20	25	30	
His Trp Trp Ser Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp	35	40	45	
Ile Gly Glu Ile Tyr Thr Tyr Gly Gly Ala Asn Tyr Asn Pro Ser Leu	50	55	60	
Lys Ser Arg Val Asp Ile Ser Met Asp Lys Ser Lys Asn Gln Phe Ser	65	70	75	80
Leu His Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys	85	90	95	
Gly Arg His Leu Thr Gly Tyr Asp Cys Phe Asp Ile Trp Gly Gln Gly	100	105	110	

Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly  
 115 120 125

Ser Gly Gly Gly Gly Ser Ala Gln Ala Val Leu Thr Gln Pro Ser Ser  
 130 135 140

Val Ser Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys Thr Gly Ser  
 145 150 155 160

Ser Ser Asn Ile Gly Ala Gly Tyr Asp Val His Trp Tyr Gln Gln Leu  
 165 170 175

Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser Asn Arg Pro  
 180 185 190

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala  
 195 200 205

Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr  
 210 215 220

Cys Gln Ser Tyr Asp Ser Ser Leu Ser Gly Val Phe Gly Thr Gly Thr  
 225 230 235 240

Gln Leu Thr Val Leu Ser  
 245

<210> 42  
 <211> 249  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 42

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu

50		55		60	
Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser					
65		70		75	80
Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys					
	85		90		95
Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly					
	100		105		110
Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly					
	115		120		125
Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln					
	130		135		140
Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys					
145		150		155	160
Thr Arg Ser Ser Gly Ser Ile Ala Ser Lys Tyr Val Gln Trp Tyr Gln					
	165		170		175
Gln Arg Pro Gly Ser Ala Pro Thr Ser Val Ile Tyr Glu Asp Asn Gln					
	180		185		190
Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ala					
	195		200		205
Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu					
	210		215		220
Ala Asp Tyr Tyr Cys Gln Ser Asp Asp Gly Ser Ser Val Val Phe Gly					
225		230		235	240
Gly Gly Thr Lys Val Thr Val Leu Gly					
	245				

<210> 43  
 <211> 257  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 43

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
 1 5 10 15  
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ser Phe Pro Ser Ser  
 20 25 30  
 Gly Leu Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Pro Glu Trp Met  
 35 40 45  
 Gly Trp Ile Gly Ile Tyr Asn Gly Asn Thr Asp Tyr Ala Gln Lys Phe  
 50 55 60  
 Gln Gly Arg Val Thr Met Thr Thr Asp Lys Ser Thr Ser Thr Ala Tyr  
 65 70 75 80  
 Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 Ala Arg Asp Ser Val Gly Ser Ile Ser Val Ala Gly Thr Met Gln Tyr  
 100 105 110  
 Tyr Tyr Phe Ala Met Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val  
 115 120 125  
 Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly  
 130 135 140  
 Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser Gly Ser Pro  
 145 150 155 160  
 Gly Gln Ser Val Thr Ile Ser Cys Ala Gly Thr Arg Tyr Asp Ile Gly  
 165 170 175  
 Thr Tyr Asn Tyr Val Ser Trp Tyr Gln Gln His Pro Ala Lys Gly Pro  
 180 185 190  
 Lys Leu Ile Ile Tyr Ala Val Ser Glu Arg Pro Ser Gly Val Pro Asn  
 195 200 205  
 Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Val Ser  
 210 215 220  
 Gly Leu Arg Ala Glu Asp Glu Ala His Tyr Tyr Cys Ser Ser Tyr Ala  
 225 230 235 240

Gly Asn Asn Asn Val Ile Phe Gly Gly Gly Thr Lys Val Thr Val Leu  
245 250 255

Gly

<210> 44  
<211> 247  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 44

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
100 105 110

Arg Gly Thr Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro  
130 135 140

Pro Ser Ala Ser Gly Thr Pro Gly Gln Arg Val Thr Ile Ser Cys Ser  
145 150 155 160

Gly Ser Phe Ser Asn Ile Gly Gly Asn Tyr Val Asn Trp Tyr Gln Gln



Thr Met Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly  
 115 120 125

Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser  
 130 135 140

Ala Ser Gly Thr Pro Gly Gln Arg Val Thr Ile Ser Cys Ser Gly Ser  
 145 150 155 160

Ser Ser Asn Ile Gly Thr Asn Tyr Val Tyr Trp Tyr Gln Gln Phe Pro  
 165 170 175

Gly Thr Ala Pro Lys Leu Leu Ile Tyr Arg Ser Asn Arg Arg Pro Ser  
 180 185 190

Gly Val Pro Asp Arg Phe Ser Ala Ser Lys Ser Gly Thr Ser Ala Ser  
 195 200 205

Leu Val Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys  
 210 215 220

Ala Ala Trp Asp Asp Arg Leu Asn Gly Glu Met Phe Gly Gly Gly Thr  
 225 230 235 240

Lys Val Thr Val Leu Gly  
 245

<210> 46  
 <211> 243  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 46

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val



50		55		60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr				
65		70		75
				80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys				
	85		90	95
Ala Arg Trp Ser Gly Arg Phe Tyr Asp Phe Trp Gly Gln Gly Thr Thr				
	100		105	110
Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly				
	115		120	125
Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser				
	130		135	140
Gly Thr Pro Gly Gln Arg Ile Thr Ile Ser Cys Ser Gly Ser Ser Ser				
145		150		155
				160
Asn Ile Gly Ser Asn Tyr Val Tyr Trp Tyr Gln Gln Leu Pro Gly Thr				
	165		170	175
Ala Pro Lys Ile Leu Ile Tyr Arg Asn Asn Gln Arg Pro Ser Gly Val				
	180		185	190
Pro Glu Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala				
	195		200	205
Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala				
	210		215	220
Trp Asp Asp Ser Leu Ser Glu Val Phe Gly Gly Gly Thr Lys Val Thr				
225		230		235
				240
Val Leu Gly				

<210> 47  
 <211> 246  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 47

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30  
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
 50 55 60  
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
 65 70 75 80  
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95  
 Ala Arg Asp Lys Gly Tyr Ser Gly Phe Asp Tyr Trp Gly Arg Gly Thr  
 100 105 110  
 Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
 115 120 125  
 Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Ala  
 130 135 140  
 Ser Gly Thr Pro Gly Gln Arg Val Thr Ile Ser Cys Ser Gly Ser Ser  
 145 150 155 160  
 Ser Asn Ile Gly Arg His Thr Val Asn Trp Tyr Gln Gln Leu Pro Gly  
 165 170 175  
 Thr Ala Pro Lys Leu Leu Ile Tyr Ser Asn Asn Gln Arg Pro Ser Gly  
 180 185 190  
 Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu  
 195 200 205  
 Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu Gly His Tyr His Cys Ala  
 210 215 220  
 Ala Trp Asp Asp Thr Leu Asn Gly Asp Val Val Phe Gly Gly Gly Thr  
 225 230 235 240

Lys Val Thr Val Leu Gly  
245

<210> 48  
<211> 251  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 48

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
100 105 110

Lys Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys  
145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln  
165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Thr Val Ile Tyr Glu Asp Asn Gln



Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
 130 135 140

Pro His Ser Val Ser Gly Ser Pro Gly Arg Thr Val Thr Ile Ser Cys  
 145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Ala Thr Asn Tyr Val Gln Trp Tyr Gln  
 165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Ile Val Ile Tyr Glu Asp Asn Gln  
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Thr Ser  
 195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu  
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Asn Asn Leu Gly Val Val  
 225 230 235 240

Phe Gly Gly Gly Thr Gln Leu Thr Val Leu Ser  
 245 250

<210> 50  
 <211> 248  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 50

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser



Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
 100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys  
 145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln  
 165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Thr Leu Ile Tyr Asp Asp Asn Gln  
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser  
 195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu  
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Asn Leu Gly Val Val  
 225 230 235 240

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
 245 250

<210> 52  
 <211> 250  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 52

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
 100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Ala Thr Ile Ser Cys  
 145 150 155 160

Thr Gly Ser Gly Gly Ser Ile Ala Arg Ser Tyr Val Gln Trp Tyr Gln  
 165 170 175

Gln Arg Pro Gly Arg Ala Pro Ser Ile Val Ile Tyr Glu Asp Tyr Gln  
 180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser



195		200		205											
Ser	Asn	Ser	Ala	Ser	Leu	Thr	Ile	Thr	Gly	Leu	Lys	Thr	Asp	Asp	Glu
210						215					220				
Ala	Asp	Tyr	Tyr	Cys	Gln	Ser	Ser	Asp	Asp	Asn	Asn	Asn	Val	Val	Phe
225					230					235					240
Gly	Gly	Gly	Thr	Lys	Val	Thr	Val	Leu	Gly						
				245					250						
<210> 53															
<211> 248															
<212> PRT															
<213> artificial															
<220>															
<223> phage display generated human antibody															
<400> 53															
Gln	Val	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Gly	Leu	Val	Lys	Pro	Ser	Gly
1			5						10					15	
Thr	Leu	Ser	Leu	Thr	Cys	Ala	Val	Ser	Gly	Gly	Ser	Ile	Ser	Thr	Ser
			20					25					30		
Asp	Trp	Trp	Ser	Trp	Val	Arg	Arg	Pro	Pro	Gly	Lys	Gly	Leu	Glu	Trp
	35						40					45			
Ile	Gly	Glu	Ile	Tyr	His	Ser	Gly	Ser	Thr	Asn	Tyr	His	Pro	Ser	Leu
	50					55					60				
Lys	Ser	Arg	Val	Thr	Ile	Ser	Leu	Asp	Lys	Ser	Lys	Asn	Gln	Phe	Ser
65					70					75					80
Leu	Lys	Leu	Ser	Ser	Val	Thr	Ala	Ala	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85						90					95	
Ala	Arg	Glu	Gly	Gly	His	Ser	Gly	Ser	Tyr	Pro	Leu	Asp	Tyr	Trp	Gly
		100						105					110		
Arg	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly
		115					120					125			
Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Gln	Ala	Val	Leu	Thr	Gln	Pro
	130					135					140				

Ser Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser  
 145 150 155 160

Gly Ser Ser Ser Asn Ile Gly Asn Asn Tyr Val Ser Trp Tyr Gln Gln  
 165 170 175

Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Tyr Asp Asn Asn Glu Arg  
 180 185 190

Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser  
 195 200 205

Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr  
 210 215 220

Tyr Cys Gly Thr Trp Asp Ser Ser Leu Ser Thr Val Val Phe Gly Thr  
 225 230 235 240

Gly Thr Lys Val Thr Val Leu Gly  
 245

<210> 54  
 <211> 249  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 54

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys

85

90

95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
 100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
 130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Val Ser Cys  
 145 150 155 160

Thr Gly Ser Gly Gly Asn Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln  
 165 170 175

Gln Arg Pro Asp Ser Ala Pro Thr Leu Val Ile Phe Glu Asp Thr Gln  
 180 185 190

Arg Pro Ser Gly Val Pro Ala Arg Phe Ser Gly Ser Ile Asp Ser Ser  
 195 200 205

Ser Asn Ser Ala Ser Leu Ile Ile Ser Ser Leu Arg Thr Glu Asp Glu  
 210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Ser Asp Ser Asn Arg Val Val Phe Gly  
 225 230 235 240

Gly Gly Thr Lys Val Thr Val Leu Gly  
 245

<210> 55  
 <211> 241  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 55

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Asn Val Ser Gly Gly Ser Ile Arg Asn Tyr  
 20 25 30

Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Gln Gly Leu Glu Tyr Ile  
35 40 45

Gly Tyr Ile Tyr Tyr Ser Gly Thr Thr Asp Tyr Asn Pro Ser Leu Lys  
50 55 60

Gly Arg Val Thr Ile Ser Leu Asp Thr Ser Lys Thr Gln Phe Ser Leu  
65 70 75 80

Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Phe Tyr Tyr Cys Val  
85 90 95

Arg Gly Pro Asn Lys Tyr Ala Phe Asp Pro Trp Gly Gln Gly Thr Leu  
100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
115 120 125

Gly Gly Gly Ser Ala Leu Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val  
130 135 140

Ser Val Ser Pro Gly Gln Thr Ala Ser Ile Thr Cys Ser Gly Asp Lys  
145 150 155 160

Leu Gly Asp Lys Phe Ala Ser Trp Tyr Gln Gln Lys Ala Gly Gln Ser  
165 170 175

Pro Val Leu Val Ile Tyr Arg Asp Thr Lys Arg Pro Ser Gly Ile Pro  
180 185 190

Glu Arg Phe Ser Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile  
195 200 205

Ser Gly Thr Gln Ala Met Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp  
210 215 220

Asp Ser Ser Thr Ala Val Phe Gly Thr Gly Thr Lys Val Thr Val Leu  
225 230 235 240

Gly

<210> 56  
<211> 251  
<212> PRT

<213> artificial

<220>

<223> phage display generated human antibody

<400> 56

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys  
145 150 155 160

Thr Arg Ser Ser Gly Ser Ile Asp Asn Asn Tyr Val Gln Trp Tyr Gln  
165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Thr Val Ile Phe Glu Asp Asn Gln  
180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser  
195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu

210	215	220
Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser His Asn Gln Gly Val Val		
225	230	235 240
Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly		
	245	250
<210> 57		
<211> 248		
<212> PRT		
<213> artificial		
<220>		
<223> phage display generated human antibody		
<400> 57		
Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly		
1	5	10 15
Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser		
	20	25 30
Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp		
	35	40 45
Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu		
	50	55 60
Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser		
65	70	75 80
Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys		
	85	90 95
Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly		
	100	105 110
Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly		
	115	120 125
Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro		
	130	135 140
Pro Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser		
145	150	155 160

Gly Ser Ser Ser Asn Ile Gly Asn Ser Tyr Val Ser Trp Tyr Lys Gln  
165 170 175

Leu Pro Gly Thr Ala Pro Lys Val Leu Ile Tyr Asp Asn Gln Lys Arg  
180 185 190

Ser Ser Gly Ile Pro Asp Arg Phe Ser Ala Ser Lys Ser Gly Thr Ser  
195 200 205

Ala Thr Leu Gly Ile Thr Gly Leu Arg Thr Glu Asp Glu Ala Asp Tyr  
210 215 220

Tyr Cys Gly Thr Trp Asp Thr Ser Leu Ser Ala Val Val Phe Gly Gly  
225 230 235 240

Gly Thr Lys Leu Thr Val Leu Gly  
245

<210> 58  
<211> 248  
<212> PRT  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 58

Glu Val Gln Leu Val Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly

100 105 110  
 Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125  
 Gly Gly Ser Gly Gly Gly Gly Ser Ala Gln Ser Val Val Thr Gln Pro  
 130 135 140  
 Pro Ser Val Ser Ala Ala Pro Gly Gln Lys Val Thr Ile Ser Cys Ser  
 145 150 155 160  
 Gly Asn Phe Ser Asn Ile Glu Tyr Asn Tyr Val Ser Trp Tyr Gln His  
 165 170 175  
 Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile Phe Asp Asn Asn Gln Arg  
 180 185 190  
 Pro Ser Trp Ile Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser  
 195 200 205  
 Ala Thr Leu Gly Ile Thr Gly Leu Gln Thr Gly Asp Glu Ala Asp Tyr  
 210 215 220  
 Tyr Cys Gly Thr Trp Asp Ser Ser Leu Asn Ala Gly Val Phe Gly Gly  
 225 230 235 240  
 Gly Thr Lys Val Thr Val Leu Gly  
 245

<210> 59  
 <211> 245  
 <212> PRT  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 59

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Arg Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45



Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Lys Asp Arg Arg Gly Val Leu Asp Pro Trp Gly Lys Gly Thr Met  
100 105 110

Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
115 120 125

Gly Gly Gly Ser Ala Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser  
130 135 140

Gly Ala Pro Gly Gln Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser  
145 150 155 160

Asn Ile Gly Ala Gly Tyr Asp Val His Trp Tyr Gln His Leu Pro Gly  
165 170 175

Thr Ala Pro Arg Leu Leu Ile Tyr Gly Asn Ser Asn Arg Pro Ser Gly  
180 185 190

Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu  
195 200 205

Ala Ile Ser Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln  
210 215 220

Ser Tyr Asp Ser Ser Leu Ser Asp Trp Val Phe Gly Gly Gly Thr Lys  
225 230 235 240

Val Thr Val Leu Gly  
245

<210> 60

<211> 250

<212> PRT

<213> artificial

<220>

<223> phage display generated human antibody

<400> 60

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ala Leu Asn Phe Met Leu Thr Gln  
130 135 140

Pro His Ser Val Ser Glu Ser Pro Gly Lys Thr Val Thr Ile Ser Cys  
145 150 155 160

Ala Arg Ser Ser Gly Ser Ile Ala Ser Asn Tyr Val Gln Trp Tyr Gln  
165 170 175

Gln Arg Pro Gly Ser Ser Pro Thr Thr Leu Ile Tyr Glu Asp Arg Gln  
180 185 190

Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Ile Asp Ser Ser  
195 200 205

Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly Leu Lys Thr Glu Asp Glu  
210 215 220

Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Asp His Val Val Phe

225

230

235

240

Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
 245 250

<210> 61  
 <211> 741  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 61  
 gaggtgcagc tgttggagtc tgggcgaggc ttggtacagc ctgggggggtc cctgagactc 60  
 tcctgtgcag cctctggatt cacctttagc agctatgcca tgagctgggt ccgccaggct 120  
 ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac 180  
 gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240  
 ctgcaaatac acagcctgag agccgaggac acggccgtgt attactgtgc gagatttgcc 300  
 gtaactgggg agtttgacta ctggggggcag gggaccacgg tcaccgtctc gagtggaggc 360  
 ggcggttcag gcggaggtgg ctctggcggg ggcggaagtg cacaggctgt gctgactcag 420  
 ccgtcctcag tgtctggggc ccaggggcag agggtcacca tctcctgcac tgggagcagc 480  
 tccaacatcg gggcagatta tgatgtacac tgggtaccagc agcttcagg aacagccccc 540  
 aaactcctca tctatggtaa caacaatcgg ccctcagggg tccctgaccg attctctggc 600  
 tccaagtctg gcacctcagc ctccctggcc atcactgggc tccaggctga ggatgaggct 660  
 gattattact gccagtccta tgacaacagc ccggatgcct atgtggtctt cggcggaggg 720  
 accaagctga ccgtcctaag t 741

<210> 62  
 <211> 732  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 62  
 caggtgcagc tgggtgcagtc tggggctgag gtgagaaaagc ctggggcctc agtgaaggtc 60  
 tcctgcaaga cttctggata caccttcacg gactactata tacactgggt gcgacaggcc 120  
 cctggacaag ggcttgagtg gatgggctgg gtcaaccctg tcaactggaac ctgaggctct 180  
 tcaccaact ttcggggcag ggtcaccatg accaccgaca cgtccggcaa cacagcctat 240

atggaactga ggagccttag atctgacgac acggccgtat tttactgtgc gaggcgtcac	300
caacagagct tggattattg gggccaggga accctgggtca ccgtctcgag tggaggcggc	360
ggttcaggcg gaggtggctc tggcggtggc ggaagtgcac agtctgtgtt gacgcagccg	420
ccctcagtgt ctgcgcccc gggacagaag gtcaccatct cctgctctgg aagcagctcc	480
aacattggga ctaattatgt atcctgggtac cagcagctcc caggaacagc ccccaaactc	540
ctcatttatg acaatcataa ggcaccctca gtgattcctg accgcttctc tggctccaag	600
tctggcacgt cagccaccct gggcatctcc ggactccaga ctggggacga ggccgattat	660
tactgcggaa catgggatta cagcctgagt acttgggtgt tcggcggagg gaccaagctg	720
accgtcctag gt	732

<210> 63  
 <211> 720  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 63	
cagttgcagc tgcaggagtc cggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggaga ctccgtcagc agttattact ggtggagttg ggtccgccag	120
ccccaggga aggggctgga gtggattgga gaaatctttc gtgatgggag ctccaactac	180
aaccggtccc tcaagagtcg ggtcaccata tccccagaca agcccaagaa tcagttctct	240
ctgaggctga gctctgtgac cgccgaggac acggccattt actactgtgc gaggcataata	300
cgcggttatg atgcttttga catctggggc cggggaaccc tggtcaccgt ctcgagtgga	360
ggcggcggtt caggcggagg tggctctggc ggtggcgga gtgcacagtc tgtgttgacg	420
cagccgccct cagtgtctgg ggccccaggg cagaggggtca ccatctcctg tactgggagc	480
agtcccaaca tcggggcagg ttatgatgta cactgggtacc agcagtttcc aggaagagcc	540
ccaagctcc tcatctatgg taacaccaat cgccctcag ggtccctga ccgattctct	600
ggctccaagt ctgacatctc agcctccctg gccatcactg ggctccaggc tgaggatgag	660
gctgattatt actgtcagtc ctatgacagc aacctgactg ggtgttcgg cggagggacc	720

<210> 64  
 <211> 732  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 64  
caggtgcagc tgggtgcagtc tggggctgag gtgaggaagc ctggggcctc agtgaaggtc 60  
tcctgcaaga cttctggata caccttcatg gactactaca tacactgggt gcgacaggcc 120  
cctggacaag ggcttgagtg gatgggctgg agcaaccctg tcaactgggtac gtcaggctct 180  
tcacctaaat ttcggggcag ggtcaccttg accactgaca cgtccggcaa cacagcctat 240  
ttggacctga ggagccttag atctgacgac acggccgtat tttactgtgc gaggcgtcac 300  
caacagagct tggattattg gggccaaggg acaatgggtca ccgtctcgag tggaggcggc 360  
ggttcaggcg gaggtggctc tggcgggtggc ggaagtgcac agtctgtgtt gacgcagccg 420  
ccctcagtgt ctgcggcccc aggacagaag gtcaccatct cctgctctgg aagcagctcc 480  
aacattggga ataattatgt atcctgggtac cagcaactcc caggaacagc ccccaaactc 540  
ctcatgtatg aaaatagtaa gcgaccctca gggattcctg accggttctc tggctccaag 600  
tctggcacgt caggcaccct gggcatcacc ggactccaga ctggggacga ggccgattat 660  
tactgcggaa catgggatac cagcctgaga gcttgggtgt tcggcggagg gaccaaggtc 720  
accgtcctag gt 732

<210> 65  
<211> 732  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 65  
caggtacagc tgcagcagtc aggggctgag gtgaggaagc ctggggcctc ggcgaaggtc 60  
tcctgcaaga cttctggata caccttcacg gactactata tacactgggt gcgacaggcc 120  
cctggacaag ggcttgagtg gatgggctgg atcaaccctg tcaactgggtc ctcaggctct 180  
tcacctaact ttcggggcag ggtcaccttg accaccgaca cgtccggcaa cacagcctat 240  
atggagctga ggagccttag atctgacgac acggccgtgt tttactgtgc gaggcgtcac 300  
caacagagct tggattattg ggggcggggg accacgggtca ccgtctcgag tggaggcggc 360  
ggttcaggcg gaggtggctc tggcgggtggc ggaagtgcac agtctgtcgt gacgcagccg 420  
ccctcagtgt ctgcggctcc aggacagaag gtcaccatct cctgctctgg gaggacatcc 480  
aacattggga acaattatgt atcctgggtat cagcaagtcc caggagcgcc ccccaaacta 540  
ctcattttttg acaataataa gcgaccctca gggactcctg cccgattctc tggctccaag 600  
tctggcacgt cagccaccct ggccatctcc ggactccaga ccggggacga ggccgattat 660

tactgcggaa catgggatac taccctgcgt ggttttgtct tcgggcccgg gaccaaggtc 720  
accgtcctag gt 732

<210> 66  
<211> 750  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 66  
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggggac cctgtccctc 60  
acctgcgctg tctctgggtg ctccatcagc agtactaact ggtggagttg ggtccgccag 120  
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180  
aaccctccc tcaagagtcg agtcaccata tcagtagaca agtccaagaa ccacttctcc 240  
ctgaacctga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagattct 300  
atgggaagca ctggctggca ttacggtatg gacctctggg gccggggaac cctggtcacc 360  
gtctcgagtg gaggcggcgg ttcaggcgga ggtggctctg gcggtggcgg aagtgcacaa 420  
tctgccctga ctcagcctcc ctccgcgtcc ggttctcctg gacagtcagt caccatctcc 480  
tgcagtggaa gcagtagtga cattggtgat tataaccatg tctcctggta ccaacagcac 540  
ccaggcaaag cccccaaact catgatttat gacgtcaata agtggccctc aggggtccct 600  
gatcgcttct ctggctccaa gtctggcaac acggcctccc tgaccgtctc tgggctccag 660  
gctgaggatg aggctgatta ttattgcagc tcatattcag gcattctaaa tttggttttc 720  
ggcggaggga ccaaggtcac cgtcctaggt 750

<210> 67  
<211> 753  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 67  
gaggtgcagc tgggtgcagtc tggggctgaa gtgaagaagc ctgggtcctc ggtgaaggtc 60  
tcctgtaagg cctctggagg caccttcaag acctatgcta tcaattgggt gcgacaggcc 120  
cctggacaag ggcttgagtg gatgggagga atcatccctg tcctgggaac agcaaattac 180  
gttcagaagt tccagggcag agtcacgatt accgcggacg aatcgacgac cacagcctac 240  
atggagctga ggggcctgag atctgaggac acggccgttt attattgtgc gagaggagag 300

ggcagtggct ggtacgatca ctactacgga ttggacgtct ggggcccaagg aaccctggtc	360
accgtctcga gtggaggcgg cggttcaggc ggaggtggct ctggcggtgg cggaagtgca	420
cagtctgtgc tgacgcagcc gccctcagcg tctgggaccc ccgggcagag ggtcaccatc	480
tcttgttctg gaagcagctc caacatcgga agtaatactg taaactggta ccggcagctc	540
ccaggaacgg cccccaaact cctcatcttt ggtgatgata agcgccctc aggggtccct	600
gaccgattct ctggctccag gtctggcacc tcagtctccc tggccatcag tgggctccag	660
tctgaggatg aggctgacta ttactgtgca gcatgggatg acagcctgaa tggcggggtg	720
ttcggcggag ggaccaagct gaccgtccta ggt	753

<210> 68  
 <211> 750  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 68	
gaggtgcagc tggtggagtc tgggggaggc ttggtacagc ctgggggggc cctgagactc	60
tcctgtgcag cctctggatt cacctttagc agctatgcca tgagctgggt ccgccaggct	120
ccaggaaggg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac	180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
ctgcaaatac acagcctgag agccgaggac acggccgtgt attactgtgc gaaagatcat	300
tactatgata gtagtgggta tcttgactac tggggccaag gcaccctggg caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggtaac catctcctgc	480
acccgcagca gtggcagcat tgccttcgac tatgtgcagt ggtaccagca gcgcccgggc	540
agtgccccca cactgtgat ctatgaggat aatcaaagac cctctggggg cctgatcgg	600
ttctctgcct ccatcgacag ctccctccaa tctgcctccc tcaccatctc tgcactgaag	660
actgaggacg aggctgacta ctactgtcag tcttatgata acagcaattc ttgggtcttc	720
ggcggaggga ccaagctgac cgtcctaggt	750

<210> 69  
 <211> 726  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 69  
aaggtgcagc tgttggagtc tgggggagggc ttggtacagc ctgggggggtc cctgagactc 60  
tcctgtgcag cctctggatt cacctttagc agctatgccca tgagctgggt cggccaggct 120  
ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac 180  
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240  
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gaaagatgat 300  
gttcggaatg cttttgatat ctgggggagg gggaccacgg tcaccgtctc gagtggaggc 360  
ggcggttcag gcgagggtgg ctctggcggt ggcggaagtg cacagtctgt gctgactcag 420  
ccaccctcag tgtccgtgtc cccaggacag acaaccagca tcacctgtc tagagataag 480  
ttgggagaac aatatgttta ctggtatcaa cagaggccag gccagtcccc tattctactc 540  
ctctatcaag attccaggcg gccctcatgg atccctgagc gattctctgg ctccaactct 600  
ggggacacag ccactctgac catcagcggg acccaggctc tggatgaggc tgactactac 660  
tgtcaggcgt gggacaacag ttcctatgta gcattcggcg gagggaccaa ggtcaccgtc 720  
ctaggt 726

<210> 70  
<211> 735  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 70  
gaggtgcagc tgttggagtc tgggggagggc ttggtacagc ctgggggggtc cctgagactc 60  
tcctgtgcag cctctggatt cacctttagc agctatgccca tgagctgggt cggccaggct 120  
ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac 180  
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240  
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagaggaggg 300  
gagctgtgga atccatattt agactactgg ggccagggca ccctggtcac cgtctcgagt 360  
ggaggcggcg gttcaggcg aggtggctct ggcggtggcg gaagtgcact gcctgtgctg 420  
actcagcccc cctcagtgtc agtggcccca gggaagacgg ccaggattac ctgtggggga 480  
aacgacattg caagtaaaag tgtgcagtgg tttcagcaga agccaggcca ggccccgtga 540  
ctggtcatct attatgatag cgaccggccc tcagggatcc ctgagcgatt ctctggctcc 600  
aactctgaga acacggccac cctgaccatc agcagggtcg aagcggggga tgaggccgac 660



tattattgtc aggtgtggga tagcagtagt gatcatccgg tgttcggcgg agggaccaag 720  
ctgaccgtcc taggt 735

<210> 71  
<211> 750  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 71  
caggtccagc tgggtgcagtc tggggcagag gtgaaaaagc ccggggagtc tctgaaaatc 60  
tcctgtaagg gttctggata cacttttacc aattactgga tcgcctgggt gcgccagatg 120  
cccggaaaag gcctggagtg gatgggaatc atttatcctg atgactctga taccagatac 180  
aaccctgcct tccaaggcca ggtcaccatg tcagccgaca agtccatcga caccgcctat 240  
ctgcagtgga gcagcctgaa ggcccteggac accgccatat attactgtgc gagaccctcg 300  
ggctggaacg acaatggcta ctttgactac tgggggagcag ggaccacggc caccgtctcg 360  
agtggaggcg gcggttcagg cggaggtggc tctggcgggt gcggaagtgc acttaatttt 420  
atgctgactc agccccactc tgtgtcggcg tctccgggga agacgggtcac cctctcctgc 480  
accggctcca gtggcagcat tgccagcaac tatgtgcagt ggtaccggca gcgcccgggc 540  
agtgccccca cactgtgat ctatgacgat aatcaaagac cctctggggc cctgatcgt 600  
ttctctggct ccatcgacag ctctccaac tctgcctccc tcaccatctc tggactgaag 660  
actgaggacg aggctgacta ctactgtcag tcttttgata acgacaatca ttgggtgttt 720  
ggcggaggga ccaagctgac cgtcctaggt 750

<210> 72  
<211> 741  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 72  
caggtgcagc tgcaggagtc gggcccagga ctggtgaggt cttcggggat cctgtccctc 60  
acctgctctg tctctggtgt ctccgtcagc agtaataact ggtggagttg ggtccgccag 120  
acccagggga aggggctgga gtggatcggg gaaatctatc agaccgggac caccaactac 180  
aaccctctc tcaagagccg agtcgccata tcactagaca agtcaggaa tcagttctcc 240  
ctgattttga agtctgtgac cgccgaggac acggccgtat attactgcgc gagaactagc 300

agcgcctggt ctaacgctga ttggggcaaa gggacaatgg tcaccgtctc gagtggagggc	360
ggcgggttcag gcgaggtgg ctctggcggg ggcggaagtg cactttcttc tgagctgact	420
caggaccct ccgcgtccgg gtctcctgga cagtcagtca gcattctcttg cactggaacc	480
agcagtgacg ttggtgggta taattatgtc tcctgggtacc aacagcaccc aggcaaagcc	540
cccaaactca tgattttctga ggctactaag cggccctcag gggtcctga tcgcttctct	600
ggctccaagt ctggcaacac ggctccctg accgtctctg ggctccaggc tgaagatgag	660
gctgattatt actgcagctc atttgagacc aacaacaatt atctcgtatt cggcggaggg	720
accaagctga ccgtcctagg t	741

<210> 73  
 <211> 753  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 73	
caggtgcagc tgcaggagtc gggcccaaga ctggtgaagc cttcacagac cctgtccctc	60
acctgcactg tctctaata ga ctccatcatc agtggcgatt acttctggag ttggatccgc	120
cagccccag ggaagggcct ggagtggatt gggaacatct ttataactgg gagcacctct	180
tacaatccgt ccctcaagag tcgacttacc atgtccctag acacgtccaa gaaccagttc	240
tccttgagat tgagctctgt gactgccgca gacacggccg tatatTTTTg tgccagaggt	300
cgacagggga tgaactggaa ttccgggacc tacttcgact cctggggcag aggaaccctg	360
gtcaccgtct cgagtggagg cggcgggttca ggcggaggtg gctctggcgg tggcggaagt	420
gcactttcct atgtgctgac tcagccaccc tctgtgtccg tggccccagg aaagacggcc	480
aataaactt gtgggggaaa gaacattgga aataaaagtg tgcagtggta tcagcagaag	540
ccaggccagg ccctgtggt agtcatgtat tatgacagcg accggccctc agggattcct	600
gagcgattct ctggctccaa cgctgggaac acggccaccc tgaccatcga cagggtcgag	660
gccggggatg aggccgatta ttactgtcag gtgtgggata aaagtagtga tcgtccggtc	720
ttcggcggag ggaccaagct gaccgtccta ggt	753

<210> 74  
 <211> 735  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 74  
caggtccagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaaggtc 60  
tcctgcaaga cttctggata caccttcatg gaataactaca tacactgggt gcgacaggcc 120  
cctggacaag ggcttgagtg gatgggctgg agcaatcctg tcaactgggtac gtcaggctct 180  
tcacctaagt ttcggggcag ggtcaccttg accactgaca cgtccggcaa cacagcctat 240  
ttggacctga ggagccttag atctgacgac acggccgttt tttactgcgc gaggcgtcat 300  
caacagagct tggattattg gggccaaggc accctgggtca ccgtctcgag tggaggcggc 360  
ggttcaggcg gaggtggctc tggcgggtggc ggaagtgcac agtctgtcgt gacgcagccg 420  
ccctccgct cgggtctcc tggacagtca gtcaccatct cctgctctgg atacagctcc 480  
tccaacatcg ggaataatgc tgtctcctgg taccaacaac tcccaggaac agcccccaaa 540  
ctcctcattt ttgacaataa taagcgaccc tcagggattc ctgcccgatt ctctggctcc 600  
cagtctggca cgacagccac cctgggcatc accggactcc agactgggga cgaggccgat 660  
tatttctgcg gaacatggga tagcagcctg agtgcttttg tcttcggatc cgggaccaag 720  
gtcacctcc taggt 735

<210> 75  
<211> 744  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 75  
atggccgagg tgcagctggt gcagctctggg gctgagggtga agaagcctgg gtcctcggtg 60  
aaggctctcct gcaaggcttc tggaggcgagc ttcagcaact atgatttcag ttgggtgcgg 120  
caggcccccg gacaagggtc tgagtggatg ggagagatca tcaatgcctt tggttcatca 180  
agatacgcac agaaattcca ggacagagtc accattaccg cggacgaatc cgcgagcaca 240  
gcctacatgg aactaagagg cctgacatct gaggacacgg ccacttatta ctgtgcgagg 300  
gcggaaaggt gggaacttaa tatggctttt gatatgtggg gcagaggaac cctgggtcacc 360  
gtctcgagtg gaggcggcgg ttcaggcgga ggtggctctg gcggtggcgg aagtgcacag 420  
tctgtgctga ctcagccacc ctcggtgtca gtggccccag ggcagacggc caggatcacc 480  
tgtgggggag acaatatagg gagaaaaaat gtccactggt accagcagcg gccaggcctg 540  
gcccctgttt tagtcgtcta tgatgacacc gaccggccct cagggatccc tgagcgattc 600  
tctggctcca actctgggga cacggccacc ctgaccatca cctgggtcga ggccggggat 660

gaagccgact attactgtca actttgggat agtgacacct atgatgtttt attcggcgga 720  
 gggaccaagc tgaccgtcct aggt 744

<210> 76  
 <211> 741  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 76  
 gaggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctgggtcctc cgtgaaggtc 60  
 tcctgcaagt cttctggagg ccccttcagc agctatggta tcagctgggt gcgacaggcc 120  
 cccggacaag ggcttgagtg gatgggaggg atcagcccta tctttggtac agcaaaactac 180  
 gcacagaagt tccagggcag agtcaccatt accgcggacg aatccacaga gacagcctac 240  
 atggagctga gtagcctgag gtctgaggac acggccgtgt attactgtgc gagagacgag 300  
 tcaccggtcg ggttttatgc tttggatatc tgggggagcag ggaccacggc caccgtctcg 360  
 agtggaggcg gcggttcagg cggaggtggc tctggcggcg gcggaagtgc actttcctat 420  
 gagctgactc agccaccctc ggtgtcagtg gcccaggac agacggccag gattaactgt 480  
 gggggagaca aaattggaag tagaagtgtg cactgggtacc agcagaagcc aggccaggcc 540  
 cctgtgatgg tcgtctatga tgatagcgac cggccctcag ggatccctga gcgattctct 600  
 ggctccaact ctgggaacac ggcaaccctg accatcagca gtgtcgaagc cggggatgag 660  
 gccgactatt attgtcaggt gtgggatggc agtactgac cctgggtatt cggcggaggg 720  
 accaaggtca ccgtcctagg t 741

<210> 77  
 <211> 765  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 77  
 gaagtgcagc tgggtgcagtc tggggctgag atgaagaagc ctgggtcctc ggtgaaggtc 60  
 tcctgcaagg catctggagg caccttcagc agctatgctg tcaactgggt gcgacaggcc 120  
 cctggacaag ggcttgaatg gatgggagga atcatcccta tttttgatac ttcgaactac 180  
 gcacagaagt tccagggcag actcacgatg accgcggacg actccacgaa cacagcctac 240  
 atggaactga ggagcctgag atctgaggac acggccgtat attactgtgc gagagggggc 300

ccgaggggaa cagttatggc attcagctct tactactttg acttatgggg ccagggcacc	360
ctggtcaccg tctcgagtgg aggcggcggt tcaggcggag gtggctctgg cggtggcgga	420
agtgcactta attttatgct gactcagccc cactctgtgt cggagtctcc ggggaagaca	480
gtaattatct cctgcgccgg cagcgggtggc aacattgcc acaactatgt gcagtgggtac	540
caacatcgcc cgggcagtgc cccattact gtgatctatg aggataatca aagaccctct	600
ggagtccctg atcgcttctc tggtccgctc gacagctcct ccaactctgc ctccctcacc	660
atctctggac tgcagactga ggacgaagct gactactact gtcactctta tgacaacacc	720
gatcaggggg tcttcggaac tgggaccaag gtcaccgtcc taggt	765

<210> 78  
 <211> 759  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 78	
gaggtgcagc tgggtggagtc cgggggaggc ttggtacagc ctggcaggtc cctgagactc	60
tcctgtgcag cctctggatt cacctttgat gattacgaca tgcactgggt ccggcaagct	120
ccagggaaagg gcctggagtg ggtctcaagt attagttgga gtgggtggaac tatagggtat	180
gcggactctg tgaagggccg attcaccgtc tccagagaca acgccaagaa ctccctgtat	240
ctgcaaataa acagtgtgag agctgaggac acggccttat attactgtgc aaaagacagg	300
ggcgtcttag cagctctccc cgactatcag tacggtatgg acgtctgggg caggggcacc	360
ctggtcaccg tctcgagtgg aggcggcggt tcaggcggag gtggctctgg cggtggcgga	420
agtgcacagt ctgccctgac tcagcctgcc tccgtgtctg ggtctcctgg acagtcgac	480
accatctcct gcactggaac cagcagtgat attgggagtt ataaccttgt ctccctgggtac	540
caacaacacc caggcaaagc ccccaaactc atgatttatg aggactataa gcgggcctca	600
ggggtttcta atcacttctc tggtccaag tctggcaaca cggcctccct gacaatctct	660
gggctccagg ctgaggacga ggctgattat tactgtctct catatgcagg tagtagcgct	720
tgggtgttcg gcggagggac caaggtcacc gtcctaggt	759

<210> 79  
 <211> 735  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 79  
gaagtgcagc tgggtgcagtc tggggctgag gtgaggaagc ctggatcctc gatgaaggtc 60  
tcctgcaagg cctctggcga caccttcagg aactttgctt tcagttgggt gcgacaggcc 120  
cctggacaag gacttgaatg gatgggggga gtcattccctt tggttggtcc accaaagtac 180  
gctcagaagt tccagggcag actcaccatt accgcggacg agtccacgag cacctcctac 240  
atggacttga ccagcctgac actcgaagac acggccgtct atttctgtgc gcgagggggg 300  
gtttatgctc cttttgacaa atggggccaa ggaaccctgg tcaccgtctc gagtggaggc 360  
ggcggttcag gcggagggtg ctctggcggg ggcggaagtg cacagtctgt cgtgacgcag 420  
ccgccctcag tgtctgaagc cccagggcag agggtcacca tctcctgttc tggaagcagc 480  
tccaacatcg gaaataatgc tgtaaactgg taccagcagc tcccaggaaa ggctcccaaa 540  
ctcctcatct attataatga tctgctgccc tcaggggtct ctgaccgatt ctctggctcc 600  
aagtctggca cctcagcctc cctggccatc agtgggctcc agtctgagga tgaggctgat 660  
tattactgtg cagcatggga tgacagcctg aatggctggg tggtcggcgg agggaccaag 720  
gtcacctgct taggt 735

<210> 80  
<211> 753  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 80  
gaggtgcagc tgggtgcagtc tggggctgaa gtgaagaagc ctgggtcctc ggtgaaggtc 60  
tcctgtaagg cctctggagg caccttcaag acctatgcta tcaattgggt gcgacaggcc 120  
cctggacaag ggcttgagtg gatgggagga atcatccctg tcctgggaac agcaaattac 180  
gttcagaagt tccagggcag agtcacgatt accgcggacg aatcgacgac cacagcctac 240  
atggagctga ggggcctgag atctgaggac acggccgttt attattgtgc gagaggagag 300  
ggcagtgggt ggtacgatca ctactacgga ttggacgtct ggggccaagg aaccctggtc 360  
accgtctcga gtggaggcgg cggttcaggc ggaggtggct ctggcggtgg cggaagtgca 420  
cagtctgtgc tgacgcagcc gccctcagcg tctgggacct cggggcagag ggtcaccatc 480  
tcttgttctg gaagcagctc caacatcgga agtaatactg taaactggta ccggcagctc 540  
ccaggaacgg cccccaaact cctcatcttt ggtgatgac agcggccctc aggggtccct 600  
gaccgattct ctggctccag gtctggcacc tcagtctccc tggccatcag tgggctccag 660

tctgaggatg aggctgacta ttactgtgca gcatgggatg acagcctgaa tggcgggggtg 720  
 ttcggcggag ggaccaagct gaccgtccta ggt 753

<210> 81  
 <211> 744  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 81  
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 acctgcgctg tctctggtgg ctccatcagc actagtact ggtggagttg ggtccgccgg 120  
 cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180  
 caccgcgtac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc 240  
 ctgaaactga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagagggg 300  
 ggccatagtg ggagttaccc tcttgactac tggggcaaag gaaccctggt caccgtctcg 360  
 agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acaggctgtg 420  
 ctgactcagc cgtcctcagt gtctgcggcc ccaggacaga aggtcaccat ctctgtctct 480  
 ggaagcagct ccaacattgg gaataattat gtatcctggt accagcagct ccaggaaca 540  
 gccccaaac tcctcattta tgacaataat aagcgaccct cagggattcc tgaccgattc 600  
 tctggctcca ggtctggcac gtcagccacc ctgggcatca ccggactcca gactggggac 660  
 gaggccgatt attactgcgg aacatgggat agcagcctga gtgctgtagt cttcggaact 720  
 gggaccaagc tgaccgtcct aggt 744

<210> 82  
 <211> 750  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 82  
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 acctgcgctg tctctggtgg ctccatcagc agtactaact ggtggagttg ggtccgccag 120  
 cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180  
 aaccgcgtcc tcaagagtcg agtcaccata tcagtagaca agtccaagaa ccacttctcc 240  
 ctgaacctga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagattct 300

atgggaagca ctggctggca ttacggtatg gacctctggg gcaaaggcac cctgggtcacc	360
gtctcgagtg gagggcgcg ttcaggcgga ggtggctctg gcggtggcgg aagtgcacag	420
tctgccctga ctacgctgc ctccgtgtct gggctctctg gacagtcgat cgccatctcc	480
tgcactggaa ccagcagtga cgttggtggt tataactatg tctcgtggta ccaacagcac	540
ccaggcaaag cccccaaact catgatttat gctgtcacta atcggccctc aggggtttct	600
gatcgcttct ctggctccaa gtctggcaac acggcctccc tgaccatctc tgggtccag	660
gctgacgacg aggctgatta ttactgcagc tcatatacaa gcagcagctc tctggtgttc	720
ggcggaggga ccaagctgac cgtcctaggt	750

<210> 83  
 <211> 720  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 83	
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tcctgtgcag cctctggatt caccttcagt agttatacca tgaactgggt cgcagaggt	120
ccagggaagg ggctggagtg ggtttcatac attagtagta gtggtagtgc cacatactac	180
gcagactctg tgaagggccg attcaccatc tccagggaca acgccaacaa ctcaactgtat	240
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagagggtac	300
cgctacggca tggacgtctg gggccaagga accctgggtc cgtctcgag tgggtggaggc	360
ggttcaggcg gaggtggcag cggcgggtggc ggatcgggca tcgtgatgac ccagtctcct	420
tccaccctgt ctgcatctgt aggagacaga gtcaccatca cttgccgggc cagtcagggt	480
attagtagct ggttggcctg gtatcagcag aaaccaggga gagcccctaa ggtcttgatc	540
tataaggcat ctactttaga aagtggggtc ccatcaaggt tcagcggcag tggatctggg	600
acagatttca ctctcaccat cagcagctctg caacctgaag attttgcaac ttactactgt	660
caacagagtt acagtacccc gtggacgttc ggccaaggga ccaagctgga gatcaaacgt	720

<210> 84  
 <211> 735  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 84



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acctgtgcag cctctggatt cacctttagc agctatgcc a tgagctgggt ccgccaggct	120
ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac	180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
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gcagtggcag gtattgacta ctggggcccg gggacaatgg tcaccgtctc gagtggaggc	360
ggcggttcag gcggagggtg ctctggcggg ggcggaagtg cacagtctgt gctgacgcag	420
ccgccctcag cgtctgggac ccccgggcag agggtcacca tatcttggtc tgggagcagt	480
tccaacatca gaagtaatta tgtttactgg taccagcagt tcccaggaac ggcccccaaa	540
ctcctcattt atagaaataa tcagcggccc tcaggggtcc ctgaccgatt ctctggctcc	600
aagtctggca cctcagcctc cctggccatc agtgggctcc ggtccgagga tgaggctgat	660
tattattgtg cagcatggga tgacaccctg gatgcttatg tcttcgcagc tgggaccaag	720
ctgaccgtcc taggt	735

<210> 85  
 <211> 753  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 85	
caggtgcagc tgcaggagtc cggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctgggtg ctccatcagc actagtgact ggtggagttg ggtccgccgg	120
cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
caccgcacac tcaagagtcg agtcaccata tcaactgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc ccttgactac tggggccagg gcaccctggt caccgtctcg	360
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atgctgactc agccccactc tgtgtcgggg tctccgggga ggacggtaac catctcctgc	480
accgcagca gtggcagcat tgccaccaac tatgtgcagt ggtaccagca gcgcccgggc	540
agttcccca ccattgtgat ctatgaagat aaccaaagac cctctggggg cctgatcgc	600
ttctctggct ccatcgacac ctctccaac tctgcctccc tcaccatctc tggactgaag	660
actgaggacg aggctgacta ctactgtcag tcttatgata gcaacaatct ggggggtggt	720

tttggcggag ggaccagct caccgtttta agt 753

<210> 86  
<211> 747  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 86  
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tcctgcaaga cttctggata caccttcatg gactactaca tacactgggt gcgacaggcc 120  
cctggacaag ggcttgagtg gatgggctgg agcaaccctg tcactgggtac gtcaggctct 180  
tcacctaaat ttcggggcag ggtcaccttg accactgaca cgtccggcaa cacagcctat 240  
ttggacctga ggagccttag atctgacgac acggccgtat ttactgtgc gaggcgtcac 300  
caacagagct tggattattg gggccaaggc accctgggtca ccgtctcgag tggaggcggc 360  
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tcttccctct ctgcatctcc tggagcatca gccagtctca cctgcacctt acgcagtgac 480  
atcaatgttg gttcctacag tataaactgg taccagcaga agccaggag tcctccccaa 540  
tatctcctga actacagatc agactcagat aagcagcagg gctctggagt cccagccgc 600  
ttctctggat cgaaggatgc ttcggccaat gcagggattt tactcatctc tgggtctccag 660  
tctgaggatg aggctgacta ttactgtatg atttggtaca ggaccgcttg ggtgttcggc 720  
ggagggacca aggtcacctg cctaggt 747

<210> 87  
<211> 732  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 87  
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cctggacaag ggcttgagtg gatgggctgg agcaaccctg tcactgggtac gtcaggctct 180  
tcacctaagt ttcggggcag ggtcaccttg accactgaca cgtccggcaa cacagcctat 240  
ttggacctga ggagccttag atctgacgac acggccgtct ttactgtgc gaggcgtcac 300  
caacagagct tggattattg ggggcggggg accacgggtca ccgtctcgag tggaggcggc 360

ggttcaggcg gaggtggctc tggcgggtggc ggaagtgcac agtctgtgct gacgcagccg	420
ccctcagtgt ctgcggcccc aggacagaag gtcaccatct cctgctctgg aaccaactcc	480
aacattggaa attattatgt atcttggtac cagcaactcc caggaacagc ccccaaactc	540
ctcatttatg acaataataa gcgaccctca ggggtccctg accgattctc tggctccaag	600
tctggcacct cagcctccct ggatcatcagt gggctccggc cagaggatga ggctgattat	660
tactgtgcag catgggatgg cagcctgact gcttgggtgt tcggcggagg gaccaaggtc	720
accgtcctag gt	732

<210> 88  
 <211> 750  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 88	
caggtgcagc tgcaggagtc cggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtga ctccatcagc agtagtaact ggtggacttg ggtccgccag	120
ccccagggga aggggctgga gtggattggg gaaatctttc atagtgggac caccaactac	180
aaccctgccc tcaacaatcg agtcaccata tcactagacg agtccaggaa ccagttctcc	240
ctggagttga gctctgtgac cgccgaggac acggccatat attactgtgc gagagattcg	300
gggaattacg atgataatag aggctacgac tactggggcc gaggcaccct ggtcaccgtc	360
tcgagtggag gcggcggttc aggcggaggt ggctctggcg gtggcggaag tgcacagtct	420
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gctgggacca gctccaacat cggggcaggt tttgatgtac actggtacca gcttcttcca	540
ggaagagccc ccaaactcct catctatggt aacaacaatc ggccctcagg ggtccctgac	600
cgattctctg gctccaagtc tggcacctca gcctccctgg ccatcagtgg tctccagtct	660
gaggacgagg gtgactatta ctgtgcagct tgggatgaca ccgtgggtgg tccggtgttc	720
ggcggaggga ccaagctgac cgtcctaggt	750

<210> 89  
 <211> 750  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 89

caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc agtactaact ggtggagttg ggtccgccag	120
ccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
aaccctccc tcaagagtcg agtcaccata tcagtagaca agtccaagaa ccacttctcc	240
ctgaacctga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagattct	300
atgggaagca ctggctggca ttacggtatg gacctctggg gcaggggaac cctggtcacc	360
gtctcgagtg gagggggcgg ttcaggcgga ggtggctctg gcggtggcgg aagtgcacag	420
tctgccctga ctcagcctgc cgccgtgtct gggctctctg gacagtcgat caccatctcc	480
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gctgaggacg aggttgatta ttactgcagc tcatatacag ccaccggcac tctggtattc	720
ggcggaggga ccaagctgac cgtcctaggt	750

<210> 90  
 <211> 753  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

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ccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
aaccctccc tcaagagtcg agtcaccata tcagtagaca agtccaagaa ccacttctcc	240
ctgaacctga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagattct	300
atgggaagca ctggctggca ttacggtatg gacctctggg gcaggggac cacggtcacc	360
gtctcgagtg gagggggcgg ttcaggcgga ggtggctctg gcggtggcgg aagtgcacag	420
tctgccctga ctcagcctgc ctccgtgtct gggctctctg gacagtcgat caccatctcc	480
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ccaggcaaag cccccaaact catgatttat gaggtcagta atcgccctt aggggtttct	600
aatcgcttct ctggctccaa gtctggcaac acggcctccc tgaccatctc tgggctccag	660
gctgaggacg aggggtgatta ttactgcagc tcatatacaa gcagcaccac tcttatagta	720

ttcggcggag ggaccaagct gaccgtccta ggt 753

<210> 91  
<211> 744  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 91  
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ccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180  
caccgcgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc 240  
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg 300  
ggccatagtg ggagttaccc tcttgactac tggggccaag gcaccctggg caccgtctcg 360  
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ctgactcagc caccctcagt gtctgggacc accgggcaga gggtcacccct ctcttggtct 480  
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gccccaaac tcctcatcta tactgatgat cagcggccct caggggtccc tgaccgtttc 600  
tctggctcca ggtctggcac ctccagcctcc ctggccatca gtgggctcca gtctgaggat 660  
gaggctgatt attactgtgc aacatgggat gactccctga atgccggggg gtccggcggc 720  
gggaccaagc tgaccgtcct aggt 744

<210> 92  
<211> 735  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 92  
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cctggacaag ggcttgagtg gatggcctgg agcaaccctg tcactggaac gtcaggctcc 180  
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caacagagct tggattattg gggccaagga accctgggtca ccgtctcgag tggaggcggc 360

ggttcaggcg gaggtggctc tggcggtggc ggaagtgcac agtctgtgct gactcagcca	420
ccctcagtgt ctgcggcccc agggcagacg gtcaccatct cctgctctgg aagcaactcc	480
aacattggga ataatcatgt atcttggtac cgacaactcc cggaacacagc ccccaaactc	540
ctcatttatg acaacaataa ggcaccgtca gggattcctg accgattctc tggctccaag	600
tctggcacgt cagccaccct ggacatcacc ggactccaga ctggggacga ggccgattat	660
tactgcgga catgggataa cagcctgagt gccccttggg tgttcggcgg cgggaccaag	720
ctgaccgtcc taggt	735

<210> 93  
 <211> 756  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 93	
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cctggacaag gacttgagtg gatgggaggg atcatccctg tctttggtac agcaaattac	180
gcacagaagt tccaggacag agtcactatt accgcggacg agtccacgag cacagcctac	240
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gagtatgact acggtgacta cgacgtctac tactactata tggaggtctg gggccagggc	360
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aagccaggcc agggccctgt gttggtcata tatgatgata ctgaccggcc ctctgggtatc	600
cctgagcgat tctctggctc caactctggg aacacggcca ccctgaccat cagaagggtc	660
gaagccgggg atgaggccga ctattactgt caggtgtggg atactaacag tgatcatgtg	720
atattcggcg gagggaccaa gctgaccgtc ctaggt	756

<210> 94  
 <211> 747  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 94

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tcttgccagg	cttctggagg	caccttcaca	agccacgcta	tgtactgggt	gcgacaggcc	120
cctggacaag	gacttgagt	gatgggaggg	atcatcccta	tctttggaag	aacaaactac	180
gcacagaaat	tccagggcag	agtcacgttt	accgcgga	tgtccacgag	tacagcctat	240
atggaaatga	ccagcctgag	atctgacgac	acggccgtat	attactgtgc	gagaggcgat	300
aattggaatg	acctttaccc	gattgactac	tggggccgag	gcaccctggg	caccgtctcg	360
agtggaggcg	gcggttcagg	cggagggtgg	tctggcgggt	gcggaagtgc	acttaatttt	420
atgctgactc	agccccactc	tgtgtcggag	tctccgggga	agacggtaac	catctcctgc	480
acccgcagca	gtggcagcat	tgccaccact	tacgtgcagt	ggttccagca	gcgcccgggc	540
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ttctctggat	ccatcgacag	ctcctccaac	tctgcctccc	tcaccatctc	tggactgatg	660
cctgaggacg	aggctgacta	ctactgtcag	tcttatgata	acaccgatct	ggtgttcggc	720
ggtgggaccc	agctcacctg	tttaagt				747

<210> 95  
 <211> 744  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 95	
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tggggctgag	gtgaagaagc
ctggggcctc	agtgaaggtc
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ctccctctct	gaattatcca
tgcactgggt	gcgacaggct
120	
cctggaaaag	gacttgagt
gatgggaggt	tttgatcctc
aaaatgggta	cacaatctac
180	
gcacaggagt	tccagggcag
aatcaccatg	accgaggaca
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360	
agtggaggcg	gcggttcagg
cggagggtgg	tctggcgggt
gcggaagtgc	actttcttct
420	
gagctgactc	aggaccctga
tgtgtctgtg	gcgttgggac
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atcttatcca	ggttgggtacc
agcagaagcc	aggacaggcc
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gaatccccga	ccgattctct
600	
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agctaccctg	accatcactg
gggctcaggc	ggaggatgag
660	
gctgtgtatt	actgtaattc
ccgggaagcc	agtgttcacc
atgtaagggt	cttcggcgga
720	

gggaccaagc tgaccgtcct aggt

744

<210> 96  
<211> 753  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 96  
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ggccatagtg ggagttaccc tcttgactac tggggcaagg gcaccctggt caccgtctcg 360  
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ttctctggct ccatcgacag ctctccaac tctgcctccc tcaccatctc tggactgaag 660  
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ttcggcggag ggaccaagct gaccgtccta ggt 753

<210> 97  
<211> 753  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 97  
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ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180  
caccgcgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc 240  
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg 300  
ggccatagtg ggagttaccc tcttgactac tggggccaag gcaccctggt caccgtctcg 360



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agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt 420
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accggcagca gtggcagcat tgccagcaac tatgtgcagt ggtaccagca gcgcccgggc 540
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ttctctggct ccgtcgacag ctctccaac tctgcctccc tcaccatctc tggactgaag 660
actgaggacg aggctgatta ctattgtcag tcttatgata ggagcaatca ggcggtgggt 720
ttcggcggag ggaccaagct gaccgtccta ggt 753

```

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<210> 98
<211> 759
<212> DNA
<213> artificial

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<220>
<223> phage display generated human antibody

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<400> 98
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cacaattacg atttgtggag tgcttacaac ggtttgagc tctggggcca gggcacccctg 360
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gcacagtctg tgctgacgca gccgccctca gtgtctgcgg cccaggaca gaaggtcacc 480
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cctgaccgat tctctggctc caagtctggc acgtcagcca ccctgggcat caccggactc 660
cagactgggg acgaggccga ttattattgc ggaacatggg ataagagtcc gactgacatt 720
tatgtcttcg gaagtgggac caagctgacc gtcctaggt 759

```

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<210> 99
<211> 741
<212> DNA
<213> artificial

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<220>
<223> phage display generated human antibody

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<400> 99

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gccccaggga aggggctgga gtggattggg gaaatctatt atggtgggag caccaactac	180
aaccgcgtcc tcaagagtcg agtcaccctt tcagtagaca agtccaagaa ccagttctcc	240
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ggcctctacg gtgactacgg gaacctgtgg ggccgaggaa ccctggtcac cgtctcgagt	360
ggaggcgggc gttcaggcgg aggtggctct ggcggtggcg gaagtgcaca gtctgtcgtg	420
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agcgctcca acattggaga tcattatata tcctggtacc agcagttccc aggaacagcc	540
cccaaactcc tcctctctga caatgatcag cgaccctcag ggattcctga ccggttctct	600
ggctccaagt ctggcacatc agccaccctg ggcacaccg gactccagac tggggacgag	660
gccgattact actgcggaac atgggatagc aacctgagtt cttgggtggt tggcagtggtg	720
accaagggtca ccgtcctagg t	741

<210> 100  
 <211> 750  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 100	
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cctggaaaag ggcttaagtg gatgggactt attgatcttg aagatggtaa tacaatttac	180
gcagaggagt tccaggacag agtcaccata accgcggaca cgtctacaga cacagcctac	240
atggatctga gcagcctgag atctgaggac acggccgtgt tttactgtgc aataagtccg	300
cttcggggac ttaccgcgga tgtttttgat gtctggggcc aaggaaccct ggtcaccgtc	360
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gccctgactc agcctgcctc cgcgtctggg tctcctggac agtcgatcac catctcctgc	480
actggaacca gcagtgacat tggctggttat gactttgtct cttggtatca acgacaacca	540
ggcaaagccc ccaaactcat gatttatgat gtcattaatc ggccctcagg ggtttctagt	600
cgcttctctg gctccaagtc tggcaacacg gcctccctga ccatctctgg gctccaggct	660
gaggacgagg ctgattatta ctgcagctca tatgcaggtt ccaccactct ctatgtcttc	720

ggcactggga ccaagctgac cgtcctaggt

750

<210> 101  
<211> 738  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 101  
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tccccggga agggctctgga gtggattgga gaaatctata cttatggggg cgccaactac 180  
aaccctgcc tcaagagtcg agtcgacata tcaatggaca agtccaagaa tcagttctcc 240  
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cccaaactcc tcattctatgg taacagcaat cggccctcag gggtcctga ccgattctct 600  
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gctgattatt actgccagtc ctatgacagc agcctgagtg gtgtcttcgg aactgggacc 720  
cagctcaccg ttttaagt 738

<210> 102  
<211> 747  
<212> DNA  
<213> artificial

<220>  
<223> phage display generated human antibody

<400> 102  
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ccccagga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180  
caccctcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa ccagttctcc 240  
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg 300  
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acccgcagca gtggcagcat tgccagcaag tatgtgcagt ggtaccagca gcgcccgggc 540
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ttctctggct ccatcgacag cgctccaac tctgcctccc tcaccatctc tggactgaag 660
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ggagggacca aggtcacctg cctaggt 747

```

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<210> 103
<211> 771
<212> DNA
<213> artificial

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<220>
<223> phage display generated human antibody

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<400> 103
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cctggacaag ggctgagtg gatgggatgg atcggcattt acaatggtaa cacagactat 180
gcacagaagt tccagggcag agtcaccatg accacagaca aatccacgag cacagcctac 240
atggagctga ggagcctgag atctgacgac acggccgtct attactgtgc gagagattcc 300
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gagcggccct caggtgtccc taatcgattc tctggctcca agtctggcaa cacggcctcc 660
ctgaccgtct ccgggctccg ggctgaggat gaggctcatt attattgcag ctcatagca 720
ggcaacaaca atgtgatttt cggcggaggg accaaggtca ccgtcctagg t 771

```

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<210> 104
<211> 741
<212> DNA
<213> artificial

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<220>
<223> phage display generated human antibody

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<400> 104

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ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcaacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccgag ggacaatggt caccgtctcg	360
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tctagtttta agtcgggcac ctccagctcc ctggccatca gtgggctccg gtccgaggat	660
gaggctgatt attactgtgc aacatgggat gacagccaga ctgttttatt cggcggaggg	720
accaagctga ccgtcctagg t	741

<210> 105

<211> 738

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 105

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ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac	180
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tccaagtctg gcacctcagc ctccctgggc atcagtgggc tccggtccga agatgaggct	660
gactattact gtgcagcatg ggatgacaga ctgaatggcg agatgttcgg cggagggacc	720

aaggtcaccg tcctaggt

738

<210> 106

<211> 729

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<220>

<221> misc\_feature

<222> (63)..(63)

<223> n is a, c, g, or t

<400> 106

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tcntgtgcag cctctggatt cacctttagc agctatgccca tgagctgggt tcgccaggct 120

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gggtcaggcg gaggtggctc tggcggtggc ggaagtgcac agtctgtgct gactcagcca 420

ccctcagcgt ctgggacccc cgggcagagg atcaccatct cttgttccgg aagcagctcc 480

aacatcgga gtaattatgt atactggtac cagcaactcc caggaacggc ccccaaaatc 540

ctcatctata ggaataatca ggggccctca ggggtccctg agcgattctc tggctccaag 600

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gtcctaggt 729

<210> 107

<211> 738

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 107

gaggtgcagc tggttgagtc tgggggaggc ttggtacagc ctgggggggtc cctgagactc 60

tcctgtgcag cctctggatt cacctttagc agctatgccca tgagctgggt ccgccaggct 120

ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac 180

gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
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ctgctcatct atagcaataa tcagcggccc tcaggggtcc ctgaccgatt ctctggctcc	600
aagtctggca cctcagcctc cctggccatc agtgggctcc agtctgaaga tgagggtcat	660
tatcactgtg cagcatggga tgacaccctg aatggtgatg tggatttcgg cggagggacc	720
aaggtcaccg tcctaggt	738

<210> 108  
 <211> 753  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

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ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcaattgaca aatcgaagaa tcagttctcc	240
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ttctctggct ccatcgacag ctctccaac tctgcctccc tcaccatctc tggactgaag	660
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ttcggcggag ggaccaagct gaccgtccta ggt	753

<210> 109  
 <211> 753  
 <212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 109

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cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
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acccgcagca gtggcagcat tgccaccaac tatgtgcagt ggtaccagca gcgccccggc	540
agttccccca ccattgtgat ctatgaagat aaccaaagac cctctggggg cctgatcgc	600
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actgaggacg aggctgacta ctactgtcag tcttatgata gcaacaatct gggggtggt	720
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<210> 110

<211> 744

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 110

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cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
caccgcgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
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tctggctcca agtctggcac gtcagccacc ctgggcataa cgggactcca gactggggac	660
gaggccgatt attactgagg aacttgggat agcagcctga gtggcggtgt gttcggcgga	720
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<210> 111  
 <211> 753  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 111	
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ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
caccggtcac tcaagagtcg agtcaccata tcaactgaca aatcgaagaa tcagttctcc	240
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ttctctggct ccatcgacag ctccccaac tctgcctccc tcaccatctc tggactgaag	660
actgaggacg aggctgacta ctactgtcag tcttatgaca gcagcaatct ggggggtggc	720
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<210> 112  
 <211> 750  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 112	
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc actagtgact ggtggagttg ggtccgccgg	120
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180

cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccggg gaaccctggg cacccgtctcg	360
agtggaggcg gcggttcagg cggagggtggc tctggcgggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggcaac catctcctgc	480
accggcagcg gtggcagcat tgccagaagc tatgtgcagt ggtaccagca gcgcccgggc	540
cgtgccccca gcatcggttat ctatgaggat tatcaaaggc cctctggcgt ccctgatcgg	600
ttctctggct ccacgcacag ctctccaat tctgcctctc tcaccatcac tgggctgaag	660
actgacgacg aggctgacta ctactgtcag tcctctgacg acaacaacaa tgtcgtcttc	720
ggcggaggga ccaaggtcac cgtcctaggt	750

<210> 113  
 <211> 744  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 113	
cagggtgcagc tgcaggagtc cgccccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc actagtact ggtggagttg ggtccgcccg	120
ccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggcaggg gaaccctggg cacccgtctcg	360
agtggaggcg gcggttcagg cggagggtggc tctggcgggtg gcggaagtgc acaggctgtg	420
ctgactcagc cgtcctcagt gtctgcggcc ccaggacaga aggtcaccat ctctgtctct	480
ggaagcagct ccaacattgg gaataattat gtatcctggg accagcagct cccaggaaca	540
gccccaaac tctcatttta tgacaataat gagcgaccct cagggattcc tgaccgattc	600
tctggctcca agtctggcac gtcagccacc ctgggcatca ccggactcca gactggggac	660
gaggccgatt attactgcgg aacatgggat agcagcctga gtactgtggg cttcgggaact	720
gggaccaagg tcaccgtcct aggt	744

<210> 114  
 <211> 747  
 <212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 114

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc actagtgact ggtggagttg ggtccgccgg	120
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccagg gaaccctggg caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggtgac cgtttcctgc	480
accggcagcg gtggcaacat tgccagcaat tatgtacagt ggtaccagca gcgcccggac	540
agtgccccca cccttgtgat ctttgaggat acccaaaggc cctctggggg cctgtctcgg	600
ttctctggct ccatcgacag ctctccaac tctgctccc tcatcatctc ctcaactgagg	660
actgaggacg aggctgatta ctattgtcaa tcttctgatt ccaacagggt ggtgttcggc	720
ggagggacca aggtcacctg cctaggt	747

<210> 115

<211> 723

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 115

caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcaatg tctctggtgg ctccatcagg aattacttct ggagttggat ccggcagccc	120
ccagggcagg gactggagta cattgggtat atctattaca gtgggaccac cgactacaac	180
ccctccctca agggctgagt caccatatca ctagacacgt ccaagacca gttctccttg	240
aagctgaact ctgtgaccgc tgcggacacg gccttctatt actgtgtgag aggcccgaat	300
aagtatgctg tcgaccctg gggccaaggc accctgggtc ccgtctcgag tggaggcggc	360
ggttcaggcg gaggtggctc tggcgggtggc ggaagtgcac tttcctatga gctgactcag	420
ccaccctcag tgtccgtgtc ccccgacag acagccagca tcacctgctc tggagataaa	480
ttgggggata aatttgcttc ctggtatcaa cagaaggcag gccagtcccc tgtgctggtc	540

atctatcgag ataccaagcg cccctcaggg atccctgagc gattctcttg ctccaactct	600
gggaacacag ccactctcac catcagcggg acccaggcta tggatgaggc tgattattac	660
tgtcaggcgt gggacagcag cacggcggtc ttcggaactg ggaccaaggt caccgtccta	720
ggt	723

<210> 116  
 <211> 753  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 116	
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc actagtgact ggtggagttg ggtccgccgg	120
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
caccgctcac tcaagagtcg agtcaccata tcaactgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccaag gaaccctggt caccgtctcg	360
agtggaggcg gcggttcagg cggagggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggtaac catctcctgc	480
accgcagca gtggcagcat tgacaacaac tatgtccagt ggtaccagca gcgcccgggc	540
agttcccca ctactgtgat ctttgaggat aaccaaagac cctctggggg cctgatcgc	600
ttctctggct ccatcgacag ctccccaac tctgcctccc tcaccatctc tggactgaag	660
actgaggacg aggctgacta ctactgtcag tcttatgata gccacaatca gggggtggtc	720
ttcggcgag ggaccaagct gaccgtccta ggt	753

<210> 117  
 <211> 744  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 117	
cagctgcagc tgcaggagtc cggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc actagtgact ggtggagttg ggtccgccgg	120
ccccagggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180

cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccgag gaaccctggg caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acagtctgtg	420
ctgacgcagc cgccctcagt gtctgcgggc ccaggacaga aggtcaccat ctctgtctct	480
ggaagtagct ccaacattgg gaatagttat gtatcgtggg acaagcagct cccaggtaca	540
gccccaaaag tcctcattta tgacaaccag aagcgatcct cagggatccc tgaccgattc	600
tctgcctcca agtctggcac gtcagccacc ctgggcatca ccggactccg gactgaggac	660
gaggccgatt attactgcgg aacatgggat accagcctga gtgcggtggg gttcggcgga	720
gggaccaagc tgaccgtcct aggt	744

<210> 118  
 <211> 744  
 <212> DNA  
 <213> artificial

<220>  
 <223> phage display generated human antibody

<400> 118	
gagggtgcagc tgggtggagtc tggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctggtgg ctccatcagc actagtgact ggtggagttg ggtccgcccg	120
ccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
cacccgtcac tcaagagtcg agtcaccata tcacttgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgcggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggccggg gaaccctggg caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acagtctgtc	420
gtgacgcagc cgccctcagt atctgcgggc ccaggacaga aggtcaccat ctctgtctct	480
ggaaacttct ccaacattga atataattat gtatcgtggg accagcacct cccaggaaca	540
gccccaaaac tcctcatttt tgacaataat cagcgaccct catggattcc tgaccgattc	600
tctggctcca agtctggcac gtcagccacc ctgggcatca ccgggctcca gactggggac	660
gaggccgatt actactgcgg aacatgggat agcagcctga atgctggggg gttcggcgga	720
gggaccaagg tcaccgtcct aggt	744

<210> 119  
 <211> 736  
 <212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 119

gaggtgcagc tgttgagtc tgggggaggc ttggtacggc ctgggggggtc cctgagactc	60
tcctgtgcag cctctggatt cacctttagc agctatgccca tgagctgggt ccgccaggct	120
ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac	180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat	240
ctgcaaatac acagcctgag agccgaggac acggccgtgt attactgtgc gaaagatcga	300
aggggtgtcc tcgaccctg gggcaaagg acaatgggtca ccgtctcgag tggaggcggc	360
ggttcaggcg gaggtggctc tggcggtggc ggaagtgcac agtctgtgct gacgcagccg	420
ccctcagtggt ctggggcccc agggcagagg gtcaccatct cctgcactgg gagcagctcc	480
aacatcgggg caggctatga tgtacactgg taccagcacc ttccaggaac agccccaga	540
ctcctcatct atggtaacag caatcgcccc tcagggtgcc ctgaccgatt ctctggctcc	600
aagtctggca cctcagcctc cctggccatc tctgggctcc aggctgagga tgaggctgat	660
tattactgcc agtcctatga cagcagcctg agtgattggg tgttcggcgg agggaccaag	720
gtcaccgtcc taggtc	736

<210> 120

<211> 750

<212> DNA

<213> artificial

<220>

<223> phage display generated human antibody

<400> 120

cagctgcagc tgcaggagtc cggcccagga ctggtgaagc cttcggggac cctgtccctc	60
acctgcgctg tctctgggtg ctccatcagc actagtgact ggtggagttg ggtccgcccg	120
ccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac	180
caccgctcac tcaagagtcg agtcaccata tcaactgaca aatcgaagaa tcagttctcc	240
ctgaaactga gctctgtgac cgccgaggac acggccgtgt attactgtgc gagagagggg	300
ggccatagtg ggagttaccc tcttgactac tggggcaggg gcaccctggt caccgtctcg	360
agtggaggcg gcggttcagg cggaggtggc tctggcggtg gcggaagtgc acttaatttt	420
atgctgactc agccccactc tgtgtcggag tctccgggga agacggtaac catctcctgc	480
gcccgcagca gtggcagcat tgccagcaac tatgtgcagt ggtaccagca gcgcccgggc	540

agttccccc cacttttgat ctatgaggat aggcaaagac cctctggggg cctgatcgg 600  
 ttctctgggt ccatcgacag ctctccaac tctgcctccc tcaccatctc tggactgaag 660  
 actgaggacg aggctgacta ctactgtcag tcttatgata gcagcgatca tgtggtcttc 720  
 ggcgaggga ccaagctgac cgtcctaggt 750

<210> 121  
 <211> 23  
 <212> DNA  
 <213> artificial

<220>  
 <223> mutagenesis primer

<400> 121  
 cagggcaggg tcacaatggc cag 23

<210> 122  
 <211> 23  
 <212> DNA  
 <213> artificial

<220>  
 <223> mutagenesis primer

<400> 122  
 ctggccattg tgaccctgcc ctg 23

<210> 123  
 <211> 39  
 <212> DNA  
 <213> artificial

<220>  
 <223> PCR Primer

<400> 123  
 ctctccacag gcgcgcactc ccaggtgcag ctgcaggag 39

<210> 124  
 <211> 39  
 <212> DNA  
 <213> artificial

<220>  
 <223> PCR Primer

<400> 124  
 ctctccacag gcgcgcactc cgaggtgcag ctgttgag 39

<210> 125  
 <211> 39  
 <212> DNA

<213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 125  
 ctctccacag gcgcgcactc ccaggtgcca gctggtgca 39

<210> 126  
 <211> 45  
 <212> DNA  
 <213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 126  
 ctctccacag gcgcgcactc ccagctgcag ctgcaggagt cgggc 45

<210> 127  
 <211> 21  
 <212> DNA  
 <213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 127  
 accgccagag ccacctccgc c 21

<210> 128  
 <211> 39  
 <212> DNA  
 <213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 128  
 ctccacaggc gtgcactccc aggetgtgct gactcagcc 39

<210> 129  
 <211> 41  
 <212> DNA  
 <213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 129  
 ctctccacag gcgtgcactc ccagtctgtg ctgactcagc c 41

<210> 130  
 <211> 35  
 <212> DNA



<213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 130  
 ccacaggcgt gcactcctcc tatgagctga ctcag 35  
 <210> 131  
 <211> 37  
 <212> DNA  
 <213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 131  
 ctccacaggc gtgcactcca attttatgct gactcag 37  
 <210> 132  
 <211> 60  
 <212> DNA  
 <213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 132  
 ctattcctta attaagtttag atctattctg actcacctag gacggtcagc ttggtcctc 60  
 <210> 133  
 <211> 58  
 <212> DNA  
 <213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 133  
 ctattcctta attaagtttag atctattctg actcacctag gacggtgacc ttggtcac 58  
 <210> 134  
 <211> 61  
 <212> DNA  
 <213> artificial  
 <220>  
 <223> PCR Primer  
 <400> 134  
 ctattcctta attaagtttag atctattctg actcacctag gacggtcagc ttggtcacac 60  
 t 61  
 <210> 135

<211> 61  
 <212> DNA  
 <213> artificial  
  
 <220>  
 <223> PCR Primer  
  
 <400> 135  
 ctattcctta attaagtttag atctattctg actcacctag gacggtgacc ttgggtcccag 60  
 t 61  
  
 <210> 136  
 <211> 58  
 <212> DNA  
 <213> artificial  
  
 <220>  
 <223> PCR Primer  
  
 <400> 136  
 ctattcctta attaagtttag atctattctg actcacctag gacggtgagc tgggtccc 58  
  
 <210> 137  
 <211> 19  
 <212> DNA  
 <213> artificial  
  
 <220>  
 <223> PCR Primer  
  
 <400> 137  
 gcaggcttga ggtctggac 19  
  
 <210> 138  
 <211> 25  
 <212> DNA  
 <213> artificial  
  
 <220>  
 <223> PCR Primer  
  
 <400> 138  
 taattatagc aaggagacca agaag 25  
  
 <210> 139  
 <211> 25  
 <212> DNA  
 <213> artificial  
  
 <220>  
 <223> PCR Primer  
  
 <400> 139  
 cagaggtgct cttggaggag ggtgc 25

<210> 140  
 <211> 120  
 <212> PRT  
 <213> artificial

<220>  
 <223> V\_region

<400> 140

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Ser Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val Lys  
 50 55 60

Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu  
 65 70 75 80

Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala  
 85 90 95

Lys Asp His Tyr Tyr Asp Ser Ser Gly Tyr Leu Asp Tyr Trp Gly Gln  
 100 105 110

Gly Thr Leu Val Thr Val Ser Ser  
 115 120

<210> 141  
 <211> 111  
 <212> PRT  
 <213> artificial

<220>  
 <223> V\_region

<400> 141

Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys  
 1 5 10 15

Thr Val Thr Ile Ser Cys Thr Arg Ser Ser Gly Ser Ile Ala Phe Asp  
 20 25 30

Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Ser Ala Pro Thr Thr Val  
35 40 45

Ile Tyr Glu Asp Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
50 55 60

Ala Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Ala  
65 70 75 80

Leu Lys Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Asn  
85 90 95

Ser Asn Ser Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 142  
<211> 119  
<212> PRT  
<213> artificial

<220>  
<223> V\_region

<400> 142

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly Lys Gly  
100 105 110

Thr Leu Val Thr Val Ser Ser

115

<210> 143  
<211> 112  
<212> PRT  
<213> artificial

<220>  
<223> V\_region

<400> 143

Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys  
1 5 10 15

Thr Val Thr Ile Ser Cys Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn  
20 25 30

Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Ser Ser Pro Thr Thr Val  
35 40 45

Ile Tyr Glu Asp Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
50 55 60

Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly  
65 70 75 80

Leu Lys Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser  
85 90 95

Ser Asn Gln Gly Val Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 144  
<211> 125  
<212> PRT  
<213> artificial

<220>  
<223> V\_region

<400> 144

Gln Val Gln Leu Val Gln Ser Gly Pro Glu Val Lys Lys Pro Gly Ala  
1 5 10 15

Ser Val Glu Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Asp  
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Pro Glu Trp Met

35                                      40                                      45  
 Gly Trp Ile Asn Pro Gln Thr Gly Val Thr Lys Tyr Ala Gln Lys Phe  
   50                                      55                                      60  
 Gln Gly Arg Val Thr Met Ala Arg Asp Thr Ser Ile Asn Thr Ala Tyr  
 65                                      70                                      75                                      80  
 Met Glu Leu Arg Gly Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys  
                                     85                                      90                                      95  
 Val Arg Glu Asp His Asn Tyr Asp Leu Trp Ser Ala Tyr Asn Gly Leu  
                                     100                                      105                                      110  
 Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
                                     115                                      120                                      125  
  
 <210> 145  
 <211> 111  
 <212> PRT  
 <213> artificial  
  
 <220>  
 <223> V\_region  
  
 <400> 145  
  
 Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Ala Ala Pro Gly Gln  
 1                                      5                                      10                                      15  
 Lys Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn  
                                     20                                      25                                      30  
 His Val Ser Trp Tyr Gln Gln Leu Ala Gly Thr Ala Pro Lys Leu Leu  
                                     35                                      40                                      45  
 Ile Phe Asp Asn Asp Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser  
   50                                      55                                      60  
 Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly Leu Gln  
 65                                      70                                      75                                      80  
 Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr Trp Asp Lys Ser Pro  
                                     85                                      90                                      95  
 Thr Asp Ile Tyr Val Phe Gly Ser Gly Thr Lys Leu Thr Val Leu  
                                     100                                      105                                      110

<210> 146  
 <211> 121  
 <212> PRT  
 <213> artificial

<220>  
 <223> V\_region

<400> 146

Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
 20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp  
 35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
 50 55 60

Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
 100 105 110

Arg Gly Thr Leu Val Thr Val Ser Ser  
 115 120

<210> 147  
 <211> 111  
 <212> PRT  
 <213> artificial

<220>  
 <223> V\_region

<400> 147

Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys  
 1 5 10 15

Thr Val Thr Ile Ser Cys Ala Arg Ser Ser Gly Ser Ile Ala Ser Asn  
 20 25 30

Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Ser Ser Pro Thr Thr Leu  
35 40 45

Ile Tyr Glu Asp Arg Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
50 55 60

Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly  
65 70 75 80

Leu Lys Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser  
85 90 95

Ser Asp His Val Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
100 105 110

<210> 148  
<211> 119  
<212> PRT  
<213> artificial

<220>  
<223> V\_region

<400> 148

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Ala  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Asn  
20 25 30

His Trp Trp Ser Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr Thr Tyr Gly Gly Ala Asn Tyr Asn Pro Ser Leu  
50 55 60

Lys Ser Arg Val Asp Ile Ser Met Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu His Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Gly Arg His Leu Thr Gly Tyr Asp Cys Phe Asp Ile Trp Gly Gln Gly  
100 105 110

Thr Leu Val Thr Val Ser Ser



115

<210> 149  
<211> 110  
<212> PRT  
<213> artificial

<220>  
<223> V\_region

<400> 149

Gln Ala Val Leu Thr Gln Pro Ser Ser Val Ser Gly Ala Pro Gly Gln  
1 5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Ala Gly  
20 25 30

Tyr Asp Val His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu  
35 40 45

Leu Ile Tyr Gly Asn Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
50 55 60

Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu  
65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser  
85 90 95

Leu Ser Gly Val Phe Gly Thr Gly Thr Gln Leu Thr Val Leu  
100 105 110

<210> 150  
<211> 121  
<212> PRT  
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<220>  
<223> V\_region

<400> 150

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Thr Ser  
20 25 30

Asp Trp Trp Ser Trp Val Arg Arg Pro Pro Gly Lys Gly Leu Glu Trp

35                      40                      45  
 Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr His Pro Ser Leu  
     50                      55                      60  
 Lys Ser Arg Val Thr Ile Ser Leu Asp Lys Ser Lys Asn Gln Phe Ser  
 65                      70                      75                      80  
 Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
                     85                      90                      95  
 Ala Arg Glu Gly Gly His Ser Gly Ser Tyr Pro Leu Asp Tyr Trp Gly  
                     100                      105                      110  
 Arg Gly Thr Leu Val Thr Val Ser Ser  
                     115                      120  
 <210> 151  
 <211> 111  
 <212> PRT  
 <213> artificial  
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 <223> V\_region  
 <400> 151  
 Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys  
 1                      5                      10                      15  
 Thr Ala Thr Ile Ser Cys Thr Gly Ser Gly Gly Ser Ile Ala Arg Ser  
                     20                      25                      30  
 Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Arg Ala Pro Ser Ile Val  
                     35                      40                      45  
 Ile Tyr Glu Asp Tyr Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
     50                      55                      60  
 Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Thr Gly  
 65                      70                      75                      80  
 Leu Lys Thr Asp Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Ser Asp Asp  
                     85                      90                      95  
 Asn Asn Asn Val Val Phe Gly Gly Gly Thr Lys Val Thr Val Leu  
                     100                      105                      110

<210> 152  
 <211> 117  
 <212> PRT  
 <213> artificial

<220>  
 <223> V\_region

<400> 152

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu  
 1 5 10 15

Thr Leu Ser Leu Thr Cys Asn Val Ser Gly Gly Ser Ile Arg Asn Tyr  
 20 25 30

Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Gln Gly Leu Glu Tyr Ile  
 35 40 45

Gly Tyr Ile Tyr Tyr Ser Gly Thr Thr Asp Tyr Asn Pro Ser Leu Lys  
 50 55 60

Gly Arg Val Thr Ile Ser Leu Asp Thr Ser Lys Thr Gln Phe Ser Leu  
 65 70 75 80

Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Phe Tyr Tyr Cys Val  
 85 90 95

Arg Gly Pro Asn Lys Tyr Ala Phe Asp Pro Trp Gly Gln Gly Thr Leu  
 100 105 110

Val Thr Val Ser Ser  
 115

<210> 153  
 <211> 106  
 <212> PRT  
 <213> artificial

<220>  
 <223> V\_region

<400> 153

Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ser Pro Gly Gln  
 1 5 10 15

Thr Ala Ser Ile Thr Cys Ser Gly Asp Lys Leu Gly Asp Lys Phe Ala  
 20 25 30

Ser Trp Tyr Gln Gln Lys Ala Gly Gln Ser Pro Val Leu Val Ile Tyr  
 35 40 45

Arg Asp Thr Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser  
 50 55 60

Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Met  
 65 70 75 80

Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Asp Ser Ser Thr Ala Val  
 85 90 95

Phe Gly Thr Gly Thr Lys Val Thr Val Leu  
 100 105

<210> 154  
 <211> 109  
 <212> PRT  
 <213> homo sapiens  
 <400> 154

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
 20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
 35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val  
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
 85 90 95

Ala Lys Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
 100 105

<210> 155  
 <211> 109  
 <212> PRT  
 <213> homo sapiens

<400> 155

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gly  
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Ser  
20 25 30

Asn Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp  
35 40 45

Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu  
50 55 60

Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn Gln Phe Ser  
65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
100 105

<210> 156

<211> 109

<212> PRT

<213> homo sapiens

<400> 156

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr  
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala Gln Lys Phe  
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ile Ser Thr Ala Tyr  
65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
100 105

<210> 157  
<211> 108  
<212> PRT  
<213> homo sapiens

<400> 157

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu  
1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr  
20 25 30

Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys  
50 55 60

Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu  
65 70 75 80

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala  
85 90 95

Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser  
100 105

<210> 158  
<211> 108  
<212> PRT  
<213> homo sapiens

<400> 158

Asn Phe Met Leu Thr Gln Pro His Ser Val Ser Glu Ser Pro Gly Lys  
1 5 10 15

Thr Val Thr Ile Ser Cys Thr Arg Ser Ser Gly Ser Ile Ala Ser Asn  
20 25 30

Tyr Val Gln Trp Tyr Gln Gln Arg Pro Gly Ser Ser Pro Thr Thr Val  
35 40 45

Ile Tyr Glu Asp Asn Gln Arg Pro Ser Gly Val Pro Asp Arg Phe Ser  
 50 55 60

Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu Thr Ile Ser Gly  
 65 70 75 80

Leu Lys Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser  
 85 90 95

Ser Asn Phe Gly Gly Gly Thr Lys Leu Thr Val Leu  
 100 105

<210> 159  
 <211> 108  
 <212> PRT  
 <213> homo sapiens

<400> 159

Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Ala Ala Pro Gly Gln  
 1 5 10 15

Lys Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn  
 20 25 30

Tyr Val Ser Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu  
 35 40 45

Ile Tyr Asp Asn Asn Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser  
 50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly Leu Gln  
 65 70 75 80

Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Thr Trp Asp Ser Ser Leu  
 85 90 95

Ser Ala Phe Gly Thr Gly Thr Lys Val Thr Val Leu  
 100 105

<210> 160  
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 <213> homo sapiens

<400> 160

Gln Ser Val Leu Thr Gln Pro Pro Ser Val Ser Gly Ala Pro Gly Gln  
 1 5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Ala Gly  
20 25 30

Tyr Asp Val His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu  
35 40 45

Leu Ile Tyr Gly Asn Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe  
50 55 60

Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu  
65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser  
85 90 95

Leu Ser Gly Phe Gly Gly Gly Thr Gln Leu Thr Val Leu  
100 105

<210> 161  
<211> 105  
<212> PRT  
<213> homo sapiens

<400> 161

Ser Tyr Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ser Pro Gly Gln  
1 5 10 15

Thr Ala Ser Ile Thr Cys Ser Gly Asp Lys Leu Gly Asp Lys Tyr Ala  
20 25 30

Cys Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Val Leu Val Ile Tyr  
35 40 45

Gln Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser  
50 55 60

Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Met  
65 70 75 80

Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Asp Ser Ser Thr Ala Phe  
85 90 95

Gly Thr Gly Thr Lys Val Thr Val Leu  
100 105